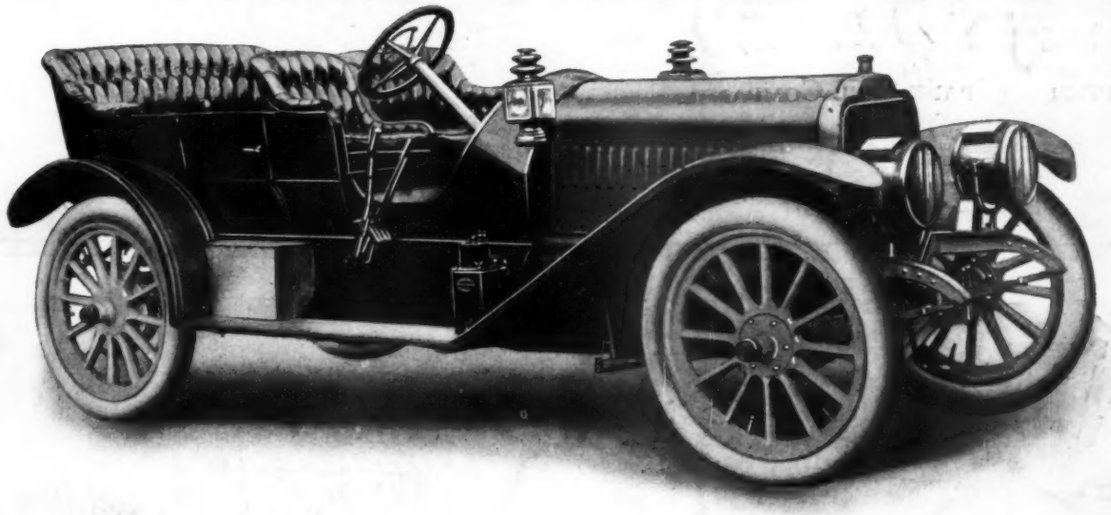
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THE AUTOMOBILE

VOL. XXI. JULY 1, 1909 No. 1.

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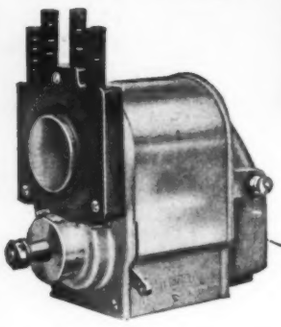
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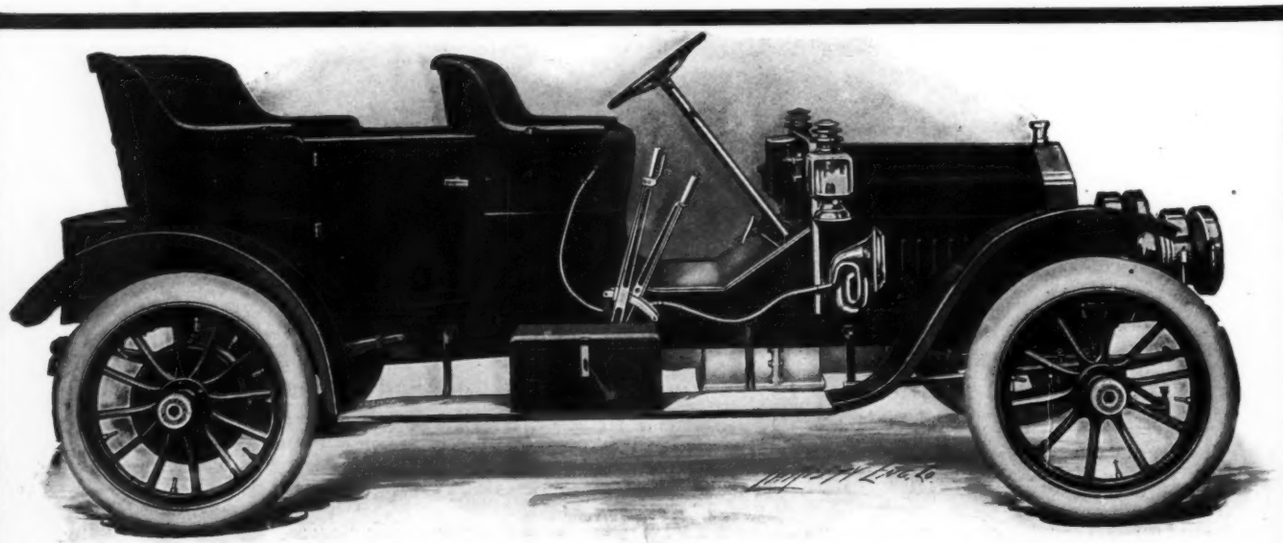
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THE AUTOMOBILE

FRENCH RACE HAS ONE-LUNG WINNER

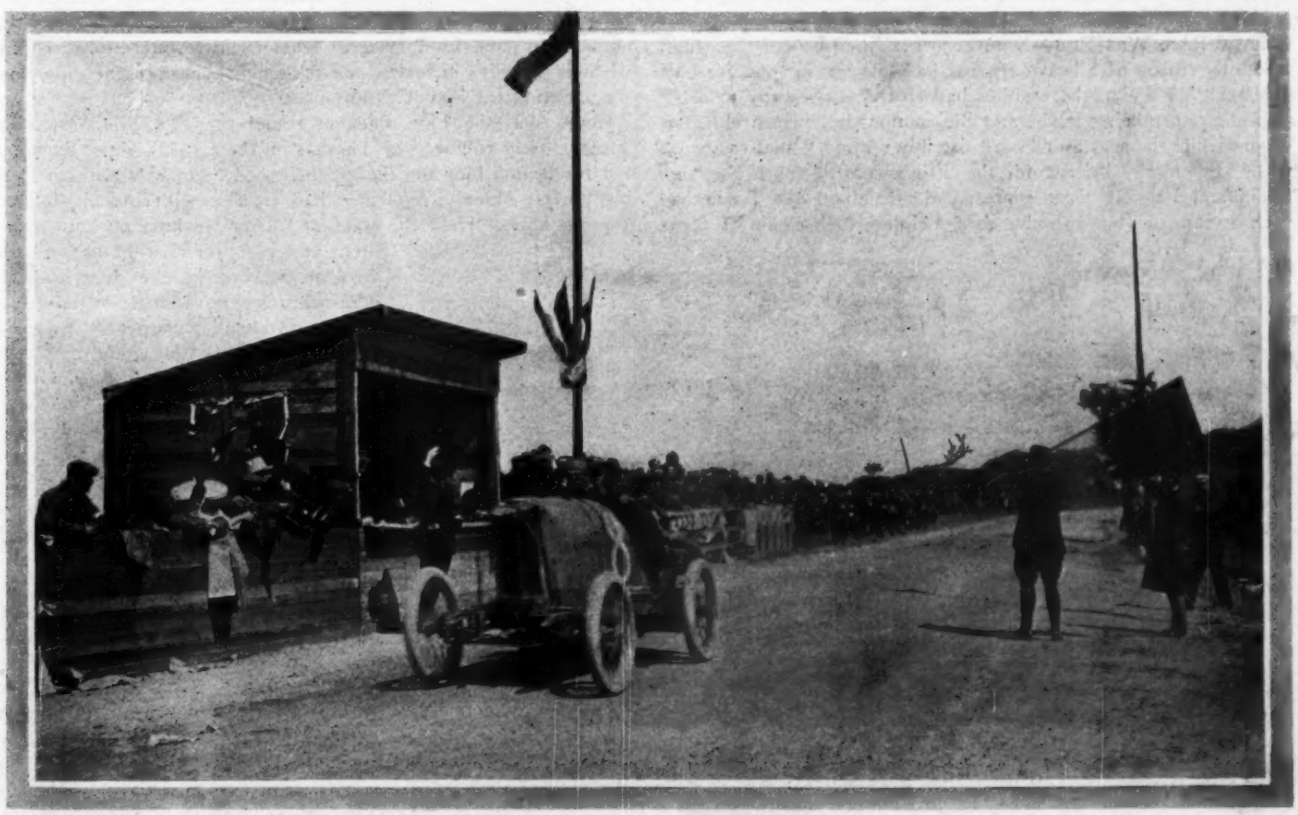
By W. F. BRADLEY

BOULOGNE-SUR-MER, June 20—The fifth annual voiturette race has proved conclusively that more power, and consequently higher speed, can be obtained from a single cylinder car of 39-10 by 10 inches bore and stroke, than from a four-cylinder of 2½ by 5½ inches. This year's race was specially designed to encourage the construction of small four-cylinder engines, and in the opinion of the one-lunger exponents, the multiple cylinder engines had been given too much liberty. The results of the race proved, however, that even with the increased bore and stroke for the four-cylinder engines they were not equal to the one-lungers, for first prize was won by a single, second by a twin, third and fourth by a single, leaving all places from fifth to ninth for the four-cylinder cars.

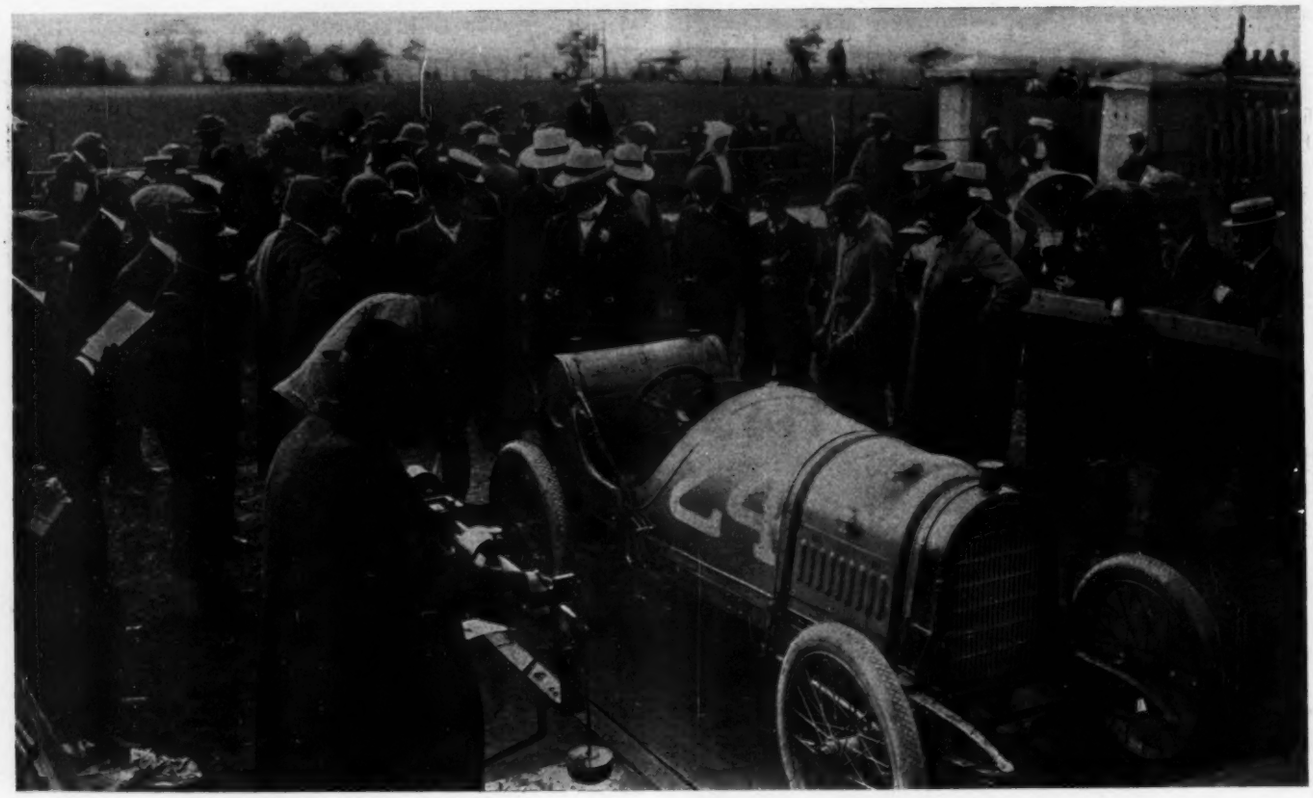
Giuppone, an Italian driver handling a French Lion Peugeot car, secured the first prize by covering the 282½ miles of hilly course in 5 hours 56 minutes 29 3-5 seconds, which is at the rate of nearly 48 miles an hour. No records were broken, but this is accounted for by the fact that the course was much more hilly than any one on which previous voiturette races have been run. Twelve rounds had to be made, each giving a series of hills, with grades of respectively 10 and 12 per cent in two cases, with a sharp bend at the base and a length of nearly a mile.

Second prize also went to a Lion Peugeot car, a special two-cylinder model driven by Goux, who came in six minutes behind his team mate. Thomas, the ex-motorcyclist, got third position with a Le Gui car, driven by a single-cylinder De Dion engine having the same dimensions as the winner. Lion Peugeot slipped in again in fourth position, with a one-lunger identical with the winning car, and driven by Boillot.

A fine display was made by the Hispano-Suiza cars, four-cylinder models hailing from Barcelona, which were grouped in fifth, sixth, and seventh positions. They are pleasing looking cars with little of the freak appearance that characterized the four single-cylinder racers, but they were certainly not as fast as these latter. They were more than equal, however, in individual and team regularity. England, who figured for the first time in a French



Giuppone, the French-Italian, Winning the Fifth Annual Voiturette Cup with Lion Peugeot Car



Weighing in Two-Cylinder Lion Peugeot Which Took Second Place in the French Voiturette Race

voiturette race, took eighth and ninth positions with a couple of Calthorpe four-cylinder cars that were marvels of regularity, but could be left standing by the speedy one-lungers. The only other car to finish the race was a four-cylinder Demeester, the performance of which was not in any way remarkable.

How Race Was Run—Nineteen cars lined up for the start, which by reason of a heavy sea fog had to be postponed for half an hour. At 8 A.M. the weather had cleared sufficiently to allow of a departure being made, and the cannonade of open exhausts began, while the spectators were forcibly reminded that castor oil was the general lubricant for the little racers. France, England, Spain and Belgium were represented. England and Spain had each a team of four cylinder cars, Belgium had a pair of four-cylinder cars, and while France had singles, twins and four-cylinder cars, the singles were in the majority.

Few of the drivers were well known to the public, and there was not, consequently, much enthusiasm as the starts were made, Maurice Fournier, brother of Henry, coming in for a cheer as he went by; the Lion Peugeot team exciting interest by reason of their previous victories, and the Englishmen present supplying the shouting for their Calthorpe cars.

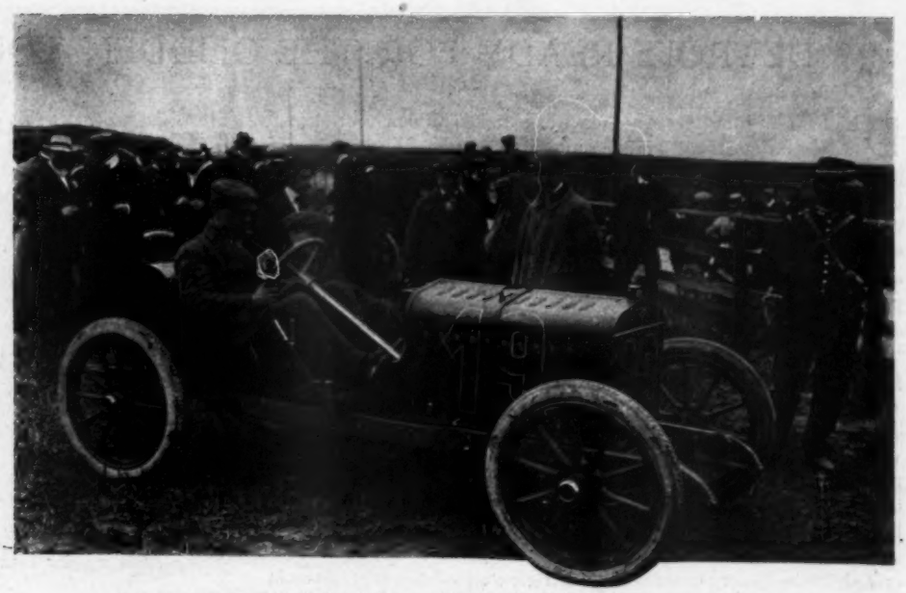
Goux took the Lion Peugeot round the 23½-mile course in 29:28, closely followed by Thomas on the Le Gui, with Giuppone not far behind him and the green-jersied Spaniards also hard on his heels. Maurice Fournier had trouble with his one-lunger Werner almost from the start, and after working on both magneto and carbureter, went out with a broken bearing in the front wheel. Crespelle, driving a single-cylinder car of his own make, discovered that his steering gear was faulty, and in consequence retired so as not to endanger the others. A little later the competitors were further reduced by the overturning of another Crespelle and the burning of a third one. One of the English Calthorpes stripped a gear, the two Belgium Fif cars were not properly tuned up, and the single Renault-Schneider car went out early.



Rather Odd-Looking English Calthorpe with Porter at Wheel

The race was absolutely devoid of exciting moments, though never lacking in interest. When the field was reduced to ten cars it was believed for a time that the four-cylinder Spaniards might give the Frenchmen some trouble, but this fear being removed, the point of interest was which of the Lion Peugeots would get first prize, or whether dare-devil Thomas would

manage to dash to the front. Goux, who has been victorious in the two previous voiturette races run in Europe this season, kept the lead for the first five rounds with his two-cylinder Lion-Peugeot. Then Giuppone on the single-cylinder model began to get more speed out of his car, passed his companion, took the lead, and maintained it to the end. Boillot, the driver of the second one-lunger Lion Peugeot, shook off the bad luck which had kept him back at the beginning of the day, and on the ninth round made the record of covering the course in 26:43, equal to a speed of 54 2-10 miles an hour. He had lost too much, however, at the beginning to get near the leader, notwithstanding the fact that during the last four rounds he was the fastest man on the course. Thomas, on the Le Gui, was the most daring, but he also had been kept back at the beginning.



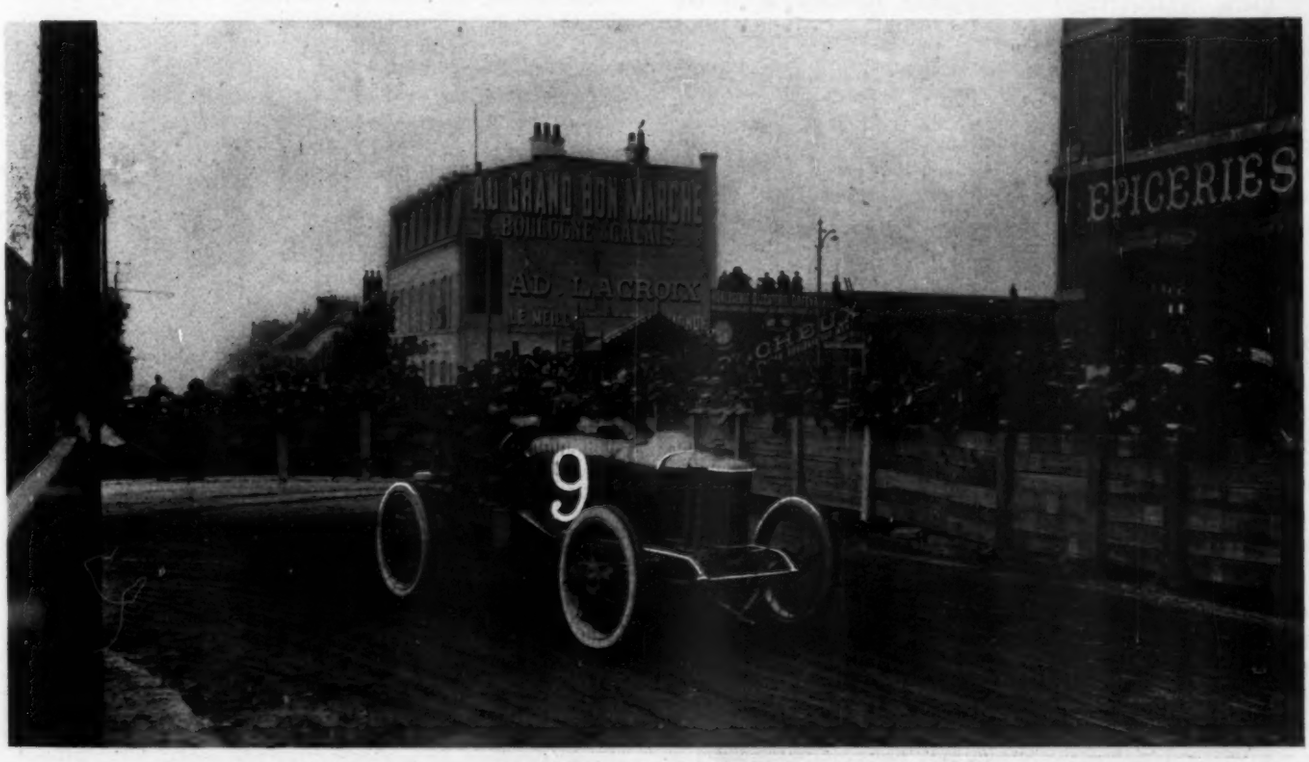
Derny and Four-Cylinder Hispano Suiza—Caillois and Faroux in Rear

How Prizes Were Distributed—The Voiturette cup and the City of Boulogne prize went to Giuppone, and the regularity prize was secured by Lion-Peugeot for first, second, and fourth positions; the special prize for the best four-cylinder performance went to Hispano-Suiza; while the Bennett prize for the car showing the least difference in time round by round was awarded to Burgess, the Calthorpe driver.

Normally the winning engine, a Boudreaux-Vernet design turned at 1,600 revolutions a minute, but could be accelerated to over 2,000 revolutions. The average lineal speed of the piston is 45 feet, rising to as high as 72 feet, when the engine was pushed to its extreme limits. As on all the single-cylinder racers valve area was enormous, the Lion Peugeot having, instead of a single inlet and exhaust, three of each for the one cylinder, the operation being by means of rocker arms. For such high lineal speed lubrication had to be given special attention, the fuel employed being castor oil. This, however, has now replaced all other types of lubricant in French speed tests.

Course Treatment Satisfactory—Instead of tar, the course was treated with calcium chloride, the result being that there was no dust and not a single driver suffered in the least from his eyes. The times of all finishing the race follow:

Giuppone, single-cylinder Lion Peugeot	5:56:29 3-5
Goux, two-cylinder Lion Peugeot	6:20:50 4-5
Thomas, single-cylinder Le Gui	6:14:13 2-5
Boillot, single-cylinder Lion Peugeot	6:20:12
Piliverde, four-cylinder Hispano-Suiza	6:27:25
Zuccarelli, four-cylinder Hispano-Suiza	6:33:55
Derny, four-cylinder Hispano-Suiza	6:34:51
Porter, four-cylinder Calthorpe	7:05:08
Burgess, four-cylinder Calthorpe	7:09:24
Vallee, four-cylinder Demeester	7:27:40



Thomas with Le Gui One-Lunger which finished in Third Position, Taking Hairpin Turn Near Boulogne

DETROIT READY FOR THE GLIDDEN TOUR FESTIVITIES

DETROIT, June 28—Another week and "Glidden tour days," now a pleasing anticipation, will become a reality. If present indications count for anything, fulfillment will far outstrip anticipation in the matter of enjoyment. Everything is practically in readiness for the coming of the Glidden tourists, the executive body of the A. A. A. and members of the A. L. A. M. and A. M. C. M. A., all of whom, in addition to visiting newspaper men and autoists, will gather here during the days immediately preceding the start of the contest. When it is all over those fortunate enough to be in Detroit at any time during that period will have experienced the strenuous life in a manner that will long be remembered.

That Detroiters are keenly alive to the situation, and appreciate what such gatherings mean to the city, is shown by the ready response to a request for funds. The amount determined upon by the Detroit Auto Dealers' Association as sufficient to keep things moving every minute, during the five days when the visitors will be here, has been exceeded by the contributions received. The hearty co-operation being extended the committee in charge of the affair presages success, and, with ample assistance promised, nothing will be lacking.

As indicating the spirit displayed on every hand, Mayor Breitmeyer's attitude is worthy of note. It was at his suggestion that the city offered an additional trophy for the Glidden tour, a magnificent cup that will go to the winner in the baby tonneau class. A massive gold key is being made to present to Chairman Hower, with the freedom of the city. Mayor Breitmeyer, who is the leading florist of the city, has expressed his desire to have the matter of decorating for the big banquet, the night of July 9, left entirely to him, of itself assurance that the floral end of the spread will be worth while. He has also offered the use of the city hall steps for the band concerts Saturday evening and Monday morning, just prior to the start of the tour. The Maxwell Briscoe band is coming all the way from Tarrytown, N. Y., to give eclat to the occasion. It will also provide music for the boat ride on the big *City of Cleveland* on Sunday, in addition to featuring in the auto parade, which will be *the* event on Saturday.

In order to make this day go down in Detroit's history, Mayor Breitmeyer will request that all business houses and residences along the line followed by the parade be decorated. He has also urged that Detroit automobile manufacturers make Saturday a half holiday, so that their employees may participate in the festivities. Inasmuch as at the present time there are not less than ten thousand of these, it will be seen that large accessions to the turnout will come from this source. Some manufacturers have gone further than this, and will give their employees sufficient time off Monday morning to witness the getaway of the Gliddenites, which will take place from the city hall at 9 o'clock. It is anticipated that others will follow suit, wherever conditions are such as to permit suspension of operations, and that the Glidden tour, in addition to providing plenty of enjoyment for entrants, will prove instructive to local automobile interests. At the same time, nothing will be left undone to demonstrate the important position Detroit holds as the hub of the industry.

Wisconsin Horsemen are Notified of Tour

MILWAUKEE, June 28—Frank P. Hixon, president of the La-Crosse Automobile Club, has mailed a circular letter to the editors of all papers in that section of Wisconsin. He asks them to warn farmers and drivers of horses that on July 15, 100 cars participating in the annual A. A. A. tour for the Glidden trophy will run over the roads from Madison to LaCrosse, and asking that horses unaccustomed to machines be kept off the road, especially at hills and crooked points. The Milwaukee and Madison clubs are making preparations in a like manner. Madison, the State capital, will arrange a brilliant welcome for the tourists.

WRIGHTS ARE BUSY AT FORT MEYER

WASHINGTON, D. C., June 29—Orville and Wilbur Wright have been tuning up their aeroplane at Fort Meyer preparatory to the government tests. This afternoon they had difficulty, which was located in the engine and not in the forward planes, as Wilbur thought. A flight of about 600 yards was accomplished by moonlight, the machine being in the air less than a minute.



The Weighing In of the Cars Was Attended with the Usual Conscientious Formalities

NEWS MADE IN GERMANY



BERLIN, June 20—The Prince Henry tour was participated in by 108 cars out of the 113 entered. This was a decrease compared with last year's 144, although the combined activity of the four big clubs: Imperial, Bavarian, Austrian, and Hungarian, made promise of a far larger list.

The tour led through Prussia to Hungary and Austria, winding up in Munich, 1839 kilometers in all, in six daily stages, from June 10 to 18.

In order to level out the chances of the competitors, a handicap of three debit points was worked out for all drivers who had competed in big international events and had been successful in the principal German tours as well. But this handicap was cleverly evaded in numerous cases by other drivers being nominated, while men like Poege officiated as chauffeurs! At the weighing-in, several cars were refused sanction until several alterations had been made, Poege's Mercedes being among the number. The exhaust was wrongly placed, while in one or two vehicles the exhaust box was entirely missing.

The start for the first stage—Berlin-Breslau—was made June 10, Prince Henry of Prussia and the official cars starting ahead of the ruck. One first speed trial took place on the Guben-Krossen stretch. The best time was achieved by Lochner's Opel with 2:42, or an average speed of 122 kilometers, while the highest number of points went to Wilhelm Opel's car with 6.38 points. Poege's Mercedes was second, 5.95 points.

The 101 vehicles which entered Breslau in the pouring rain were all sent off on the longest run of the tour the day following, to Tatralomnicz and Tatrafüred, 409 kilometers, where the strenuous roads accounted for a severe thinning of the ranks.

The Étappe-Breslau-Tatrafüred run was wound up in pouring rain, but on the next day brilliant sunshine and far better roads favored the competitors on the stretch to Buda Pesth, 312 kilometers, when 97 cars reached the Hungarian capital, and the reception was a brilliant one.

Sunday, June 13, was a rest day which ended with a big banquet for 300 persons, arranged by the Hungarian Automobile Club. Prince Henry made a witty speech and concluded with a toast in Hungarian which brought the entire assembly to its feet.

June 14 the start was only made at 9 A. M. for Vienna, a concession much appreciated after the 5 o'clocks of the preceding days. The run was finished by all the 97 cars, and one or two of the damaged ones of earlier days closed up as well. The reception at Vienna quite equaled that at Buda Pesth as far as official circles go, but the Austrian populace itself was very reserved in its treatment of the tourists.

June 15 was a day of rest, when exchange of compliments took place between the old Emperor and Prince Henry and the German and Austrian military sets. In between the lunches and dinners, the committee dealt with protests.

June 16 witnessed the most beautiful run of the whole event, from Vienna to Salzburg, amid wonderful scenery and on splendid roads. Unfortunately, however, two of the favorites had serious tire trouble on the way, these being Count Kolowrat and Poege. Of the 95 cars started at Vienna, 93 entered Salzburg.

June 17, from Salzburg to Munich, 202 kilometers, was done in the pouring rain. The second speed trial for the Forstenried stretch was included in the final day's itinerary. Luckily the weather cleared up on Bavarian territory, and the test was held amid brilliant sunshine. The best accomplishment was achieved by F. Mouson's Opel, which averaged a speed of 120 kilometers an hour, his time being 2:46 4-5. All the cars, 92 in number, arrived in Munich, where June 18 the tour terminated with a banquet and the distribution of prizes.

The first prize was won by W. Opel, who has the honor of gaining the Prince Henry cup and the beautiful prize of the Imperial Automobile Club; the second award went to Poege, Mercedes; the third to S. Kittsteiner, Opel; the fourth to Forcheimer, Benz; fifth, Sachs, Opel; sixth, L. Opel, Opel; seventh, Count Kolowrat, Laurin.

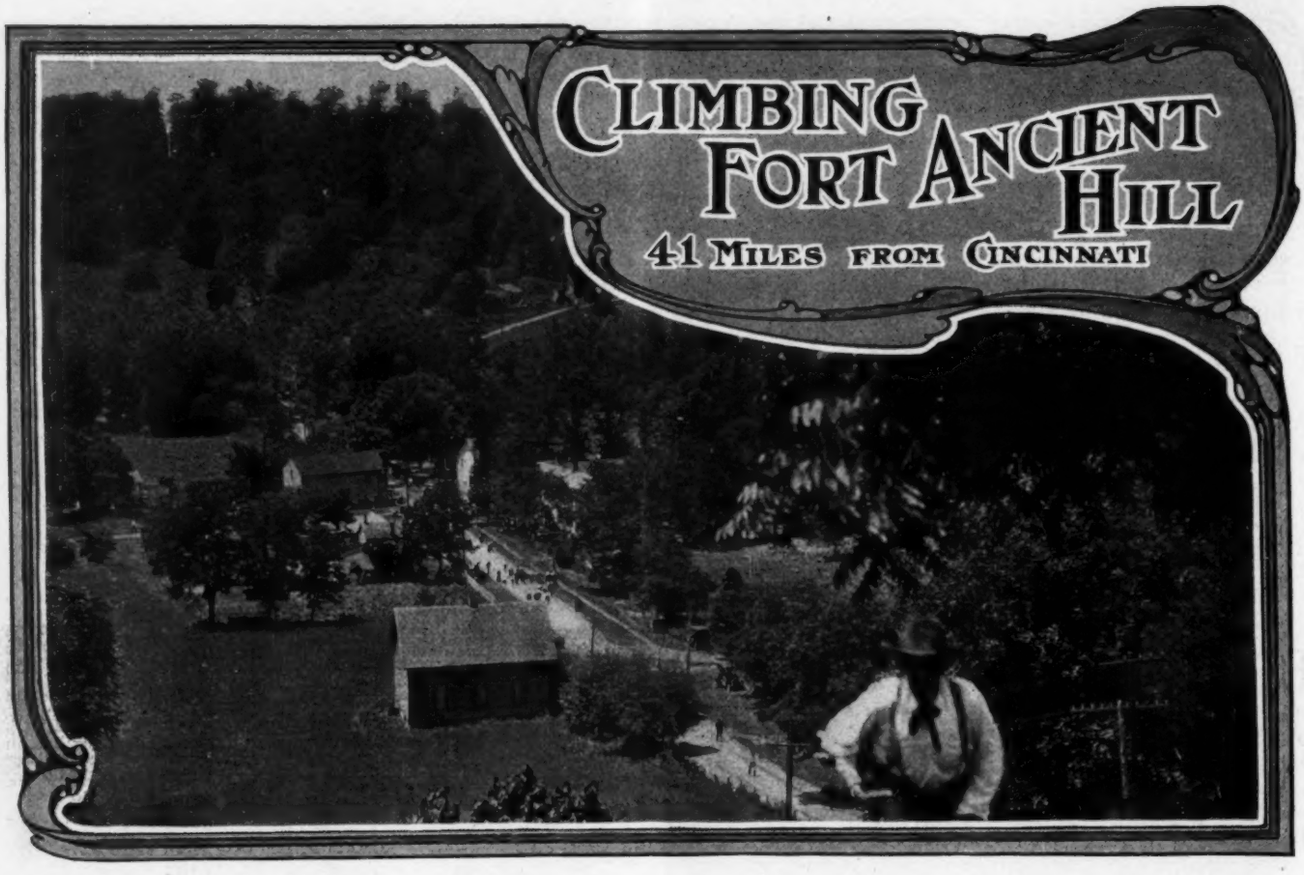
The full official lists will be published later, but Herr Opel has won the prizes for the speed trials both at Krossen and Forstenried, both of which were closely contested.

MARKS SPOT WHERE BLERIOT BEGAN

PARIS, June 10—A granite monument, backed by a full-sized model of an aeroplane, now marks the spot where Louis Bleriot left the ground on the first round trip on a flying machine. The little town of Toury being proud of the honor of having been selected as the starting and finishing point of the trip made by the French aeronaut last October, decided on the monument and made its inauguration the occasion of a local fête, where flags and bunting, gendarmes and firemen, local officials and the common people were much in evidence.

In connection with the inauguration of the monument Louis Bleriot attempted to repeat his voyage of a few months ago, but after covering eight miles ran short of gasoline and had to come back to Mother Earth. A second attempt was even less successful, for after flying at low altitudes for a certain distance some of the trip being immediately above the open highway, the aeroplane was seized by a strong gust of wind and thrown into the ditch, where it suffered rather serious injury.

Japanese Aeronautic Progress Kept Secret—That airships are being built in the land of the Rising Sun without letting the world know of the progress in the science on the islands, is the opinion of many persons who recently learned of certain patents placed in that country. Some time ago the commander-in-chief of the army commissioned an officer to investigate aeroplane and dirigible construction with a view to making improvements over the methods empoyed in the late Russo-Japanese war. The result is the taking out of a patent by Yamada on a "safe and free airship." Experiments are to be conducted this summer at a point some distance from Tokio.



CINCINNATI, June 26—To Cincinnati people, hills "as are hills," to ordinary people seem trivial. And so it happened that the Automobile Club of Cincinnati searched far and wide for a hill to tax autos to the limit, and finally "discovered" Fort Ancient hill. This is forty-one miles from the center of the city, direct east to be exact, and on the line of the C. H. & D. Railway.

The course for real climbing is only two-thirds of the seven-eighths of a mile covered, and therein comes the rub, for cars must be prepared for the two to fifteen per cent. grade, and, so prepared, cannot speed on the one-third of the stretch which is level ground. Prepared for the level, they won't climb; and there you are! In other words, the hill is a "four speed" hill and with two ugly turns or hairpins close together. The hill goes up and up, and steep side hills form beautiful natural grand stands. From the mountain sides the start may be seen down in the valley.

Cincinnati auto enthusiasts, and farmers by the hundreds, turned out to see the climb, and many a private car stuck in the heavy going of the hill, while horses even stopped to rest. But twenty cars were entered, the competition being very keen, however.

Fastest in the climb was the Stoddard-Dayton which had participated on the Saturday previous in the Cobe Cup race at Crown Point, Ind. Driven by Miller, it made the ascent in 1:11 1-5, this being in the $3,000 to $4,000 class. But in the free-for-all the car did not work at its best, the throttle-lever sticking and thus preventing a sufficient supply of gasoline on the level part of the course. Its climb was in 1:32 4-5, some seconds slower than the 1:17 of the Oakland winner, driven by Harry Bauer, a youngster who handled his car exceptionally well. In one event he swung wide on the first turn, almost capsized, and in the coolest manner possible straightened up the car and hit the next curve without hesitation. This happened in the $1,250 to $2,000 class.

The opening event for cars selling for $850 or less went to the Hupmobile, which won twice, being protested on the first trial for not carrying one cushion. The Schacht and Maxwell were other competitors.

William Walker's E-M-F, driven by "Sid" Black, plain and fancy trick rider of bicycle days, and now as fat as an alderman, won the event for stock cars selling for $851 to $1,250.

It was in the event for cars of $1,251 to $2,000 selling price that Harry Bauer took desperate chances and won in grand style over three Buicks.

Two Stoddard-Dayton cars fought it out in the $2,001 to $3,000 class. Carl Wright drove the winner and S. T. Anderson was the loser. Again the Stoddard-Dayton won in the $3,001 to $4,000 class, with Miller up, and in the course record of 1:11 1-5.

It was close in the club members race, for Conkling won in his Stevens-Duryea "Six" in 1:29 2-5 over Pounsford, also with a Stevens "Six," only 2-5 slower. The summary:

STOCK CARS—$850 OR LESS

Pos.	Car	H.P.	Driver	Time
1	Hupmobile	16.9	Gem City Auto Co.	2:22 1-4
2	Schacht	15	Schact Mfg. Co.	2:24 1-5
3	Maxwell	16	J. A. Kilpatrick	2:51 1-5

STOCK CARS—$851 TO $1,250

1	E-M-F	30	Sid Black	1:43 1-5
2	Buick	22.5	DeWitt	1:45 2-5

STOCK CARS—$1,251 TO $2,000

1	Oakland	40	Harry Bauer	1:22
2	Buick	32.4	O .V. Parrish	1:29 2-5
3	Buick	32.4	DeWitt	1:42 4-5

STOCK CARS—$2,001 TO $3,000

1	Stoddard-Dayton.	36	Carl Wright	1:19 2-5
2	Stoddard-Dayton.	45	S. T. Anderson	1:46

STOCK CARS—$3,001 TO $4,000

1	Stoddard-Dayton.	45	Miller	1:11 1-5
2	Palmer & Singer.	60	Ed. Jungclas	1:31 1-5
3	Stevens-Duryea .	44	H. A. Pounsford	1:34
4	Stevens-Duryea .	36	E. A. Conkling	1:38 2-5

FOR CLUB MEMBER "OWNERS"

1	Stevens-Duryea .	36	E. A. Conkling	1:29 2-5
2	Stevens-Duryea .	36	H. A. Pounsford	1:29 4-5
3	Stevens-Duryea .	54.1	F. H. Miller	1:36 2-5

FREE-FOR-ALL—ALL WEIGHTS AND POWERS

1	Oakland	30	Harry Bauer	1:17
2	Stearns	46	A. C. Eggers	1:20 4-5
3	Stoddard-Dayton.	45	Miller	1:32 4-5
4	Stevens-Duryea .	36	E. A. Conkling	1:33

The Fort Ancient hill will become historic now, for the contest is to be made an annual and at the even mile distance. President Charles L. Bonfield was referee of the contest. Flagmen kept the course very clear and the contests, starting at noon, were over at 3 o'clock.

CHARTER DAY CLIMB IN PLAINFIELD, N. J.

PLAINFIELD, N. J., June 28.—Johnston's Drive, beautiful and shady, will be the scene of the Charter Day hill climb, July 6. This is the first contest of its kind near this city, and a course seven-tenths of a mile has been marked out on which six events will be run, four with classifications and two free-for-alls. The entire city and North Plainfield will enter into the celebration, and the Freeholders of Somerset County have granted the necessary permission for the use of the hill and road. Events are open to all comers, according to the entry blanks—amateur and professional, private owners and dealers—and there will be first, second, and third prizes, the first gold medals and the second silver.

Under the sanction and rules of the A. A. A. contest board the classes have been arranged as follows: Cars selling at $1,100 or less, with equipment; cars selling between $1,100 and $1,650; those between $1,650 and $3,000; cars selling for $3,000 and over; free-for-all for runabouts; free-for-all. A special class may be arranged for steamers. Mail entries will close July 5, although it is announced that post entries may be made. The event is under the direction of Alexander Milne, of the newly formed Plainfield Automobile Club, and F. J. Titus, who is acting manager of the climb.

THAT ROADS CONVENTION OF THE A. A. A.

NEW YORK, June 28—Should ample preparation be a qualification, the Second Annual National Good Roads Convention will be a memorable one. Already plans promulgated have been set in motion, and, although the conference does not occur until the latter part of September, those who are connected with its arrangements have commenced their work.

The American Automobile Association and the National Grange join forces in this movement for better highways, and Cleveland will be the scene of their activity in the fall. Secretary Elliott, of the A. A. A., has returned from a trip to see those of Cleveland, Buffalo and Detroit who are interested, at Cleveland meeting George C. Diehl, chairman of the Good Roads Board, as well as the officers of the Cleveland Automobile Club and the Ohio State Automobile Association. The sentiment expressed by the Ohioans was one of genuine enthusiasm, representing that of the manufacturers and owners of that section. The exact date of the convention will be announced shortly.

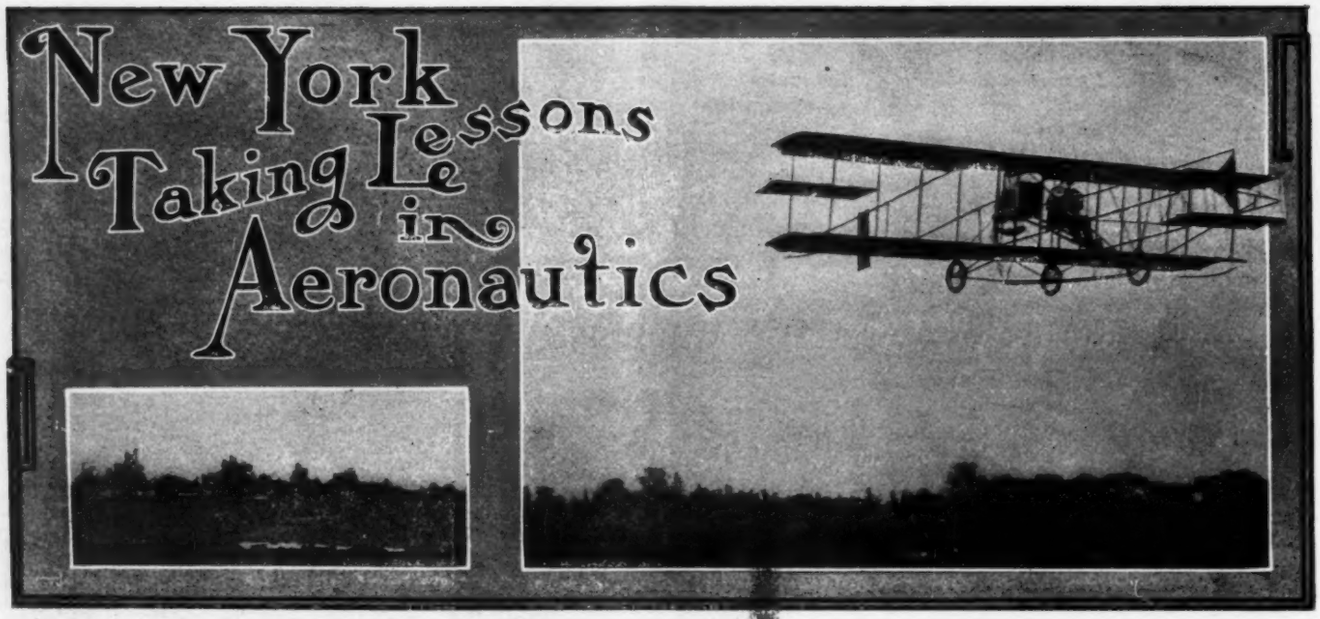
Powell Evans, chairman of the touring board of the A. A. A., has sailed for Europe to represent this country in the annual congress of the Ligue Internationale Association des Touristes. which will be held in London, July 7, 8 and 9. This body includes the largest touring organization in the world, and the A. A. A. has been informed that its application for membership will be acted upon at the coming meeting.

ELECTRIC VEHICLE WILL PAY DIVIDEND

HARTFORD, CONN., June 28—By the order of Judge Cross, of the United States Circuit Court, the receivers of the Electric Vehicle Company will pay all holders of unsecured proven claims a 20 per cent. dividend. They are permitted, also, to pay the same dividend on claims aggregating $101,094.35, which were filed out of time, but must bar all creditors who have not presented their claims heretofore. The petition for the order states that the unsecured claims amount to $2,721,585.76, exclusive of interest, to which must be added the new set. The receivers have $150,000 in cash and the offer of $430,000 for the concern and its assets. It has been decided to sell to the newly-organized Columbia Motor Car Company, and the receivers will make their final report sixty days after July 1.



New York Taking Lessons in Aeronautics



Aviator Curtiss Making His Flight That Demonstrated Such Wonderful Control of Machine

NEW YORK, June 26—With a surprisingly perfect flight of one mile, Glenn H. Curtiss, of Hammondsport, N. Y., brought to a close a very successful innings of flying at the old Morris Park race track, located in the Bronx. This was the last event on the program of the Aeronautic Society's first exhibition and contest of all types of aeronautical devices ever held.

In this series of flights, Curtiss has been very successful, and has proven beyond dispute the ability of the machine to fly early, often, and regularly. Beginning with the first attempt the day after the machine had been unpacked and put together, he gave an idea of what might be expected later on, when the machine had been well tuned up, by making an excellent flight of nearly a quarter of a mile. Following this, each successive attempt resulted in an increased length of flight.

In distance alone, this latter was not so very remarkable, but it was the perfect control of the machine by the operator which made it differ from other and longer flights. Rising from a point near the grand stand, Curtiss rose to a height of about 100 feet, and circled around the mile oval as readily as if the machine had been an automobile. At the conclusion of the mile-long excursion, he descended within a few yards of the starting point.

Throughout the circuit of the track, Curtiss rose and fell with ease, whenever an obstacle in the form of a tree made a different elevation either desirable or necessary. Moreover, in turning, the new apparatus was shown to be in keeping with the rest of the machine, in that it obeyed perfectly. Essentially a perfected product, every part of the machine has a finished appearance, in which it differs from the earlier machines constructed by the Wright Brothers. These latter were built with considerable economy, so that many of the parts bore the marks of lack of funds. With the new Curtiss machine, this is not so, and the excellent appearance and correct interrelation of the parts made a very favorable impression, even before the machine had been proven out in actual flight. So excellent was this impression that a local company, which has secured the agency for the Curtiss-Herring machines, was able to dispose of one, within twenty-four hours of taking the agency.

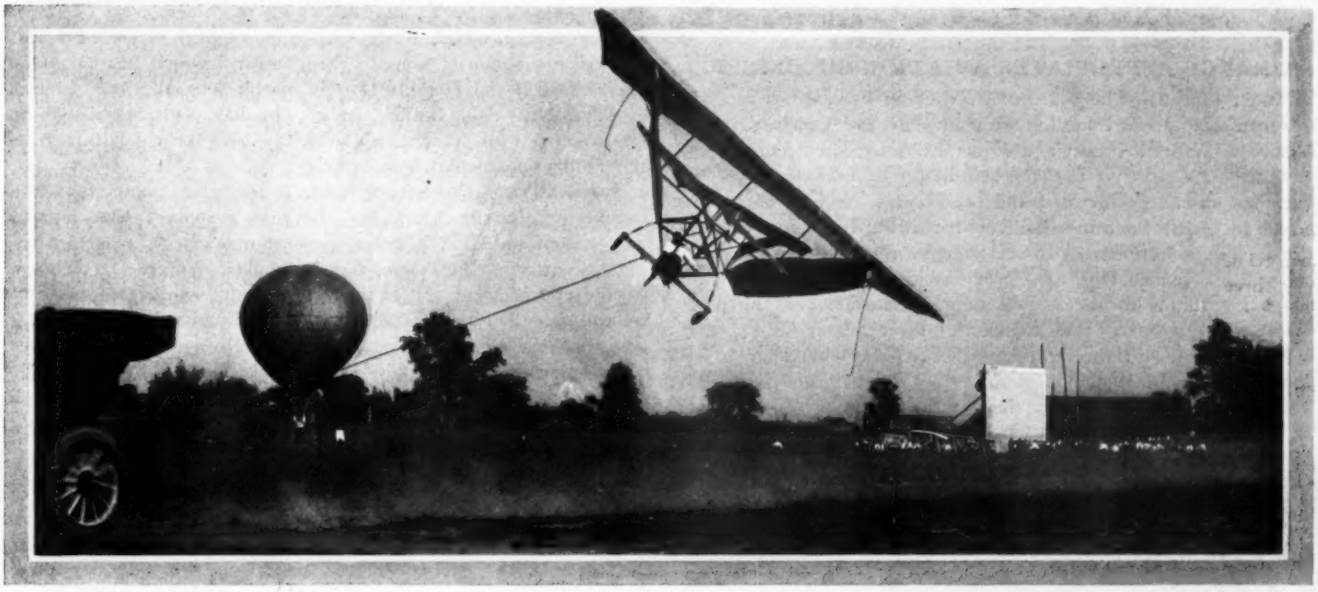
Mechanical Details of Curtiss Flyer—The most successful of the half-dozen aeroplanes with which experiments are now being made is the latest Curtiss machine, as illustrated in the accompanying photographs. This is named Curtiss Aeroplane No. 1, because the first built entirely by Curtiss, at the Hammondsport factory. All previously built machines were the property of the Aerial Experiment Association, including the *June*



Interested Aeronautical Enthusiasts Watching the Experiments at Morris Park Last Week

Bug, Red Wing, White Wing, and *Silver Dart.* The flying machine now at Morris Park track has just been purchased by the Aeronautic Society for experimental work. It is the lightest aeroplane yet built by Curtiss, and in fact is the lightest that has made successful flights, with the exception of the Santos-Dumont monoplane. It made four or five flights of upwards of three-quarters of a mile before it was shipped to New York.

The Curtiss aeroplane is a most interesting and pleasing machine, being well proportioned and showing careful and well-finished workmanship. The woodwork, which is all of Oregon spruce, with the exception of two ash braces extending from the motor to the front wheel and the bamboo poles supporting the front horizontal rudder and the "tail" or combined horizontal plane and vertical rudder at the rear, is neatly shaped, smoothed down and shellacked. The supporting surfaces are made of rubberized silk, the lower planes of light yellow color and the upper surfaces of light chocolate shade. The surfaces are made in sections having metal eyelets pressed into the edge by means of which they are laced to the frame. The combined area of the supporting surfaces aggregates about 250 square feet, yet it is said that the machine has sufficient lifting power to raise two men from the ground.



Martin Glider Which Came to Grief Through the Too Energetic Action of the Auto Which Towed It

Extremely Light Weight a Feature—The total weight, ready to fly, but without the operator, is about 400 pounds, or just about half the weight of the *June Bug* and less than half the weight of the Wright machines. It is driven by a Curtiss aeronautical engine of new design, which is soon to be put on the market. Stripped, the engine weighs only 85 pounds, and with radiator, tanks, etc., the weight is about 150 pounds. It develops from 25 to 30 horsepower. There are four cylinders, copper-jacketed and fitted with mechanical inlet and exhaust valves. The cylinders exhaust directly from ports on the right side into the open air. A Bosch magneto furnishes ignition current, and the water and oil are circulated by geared pumps. Fuel is carried in the cylindrical tank above the engine and lubricating oil in the irregular shaped tank suspended below. A two-blade wooden propeller, 6 feet in diameter and of 5 feet pitch, painted black, is keyed directly upon the end of the crankshaft. Speed of the engine is governed by the throttle.

Over all, the machine measures 29 feet, and it is also 29 feet wide from tip to tip of wings. The biplanes are each 4 feet 6 inches deep and just alike.

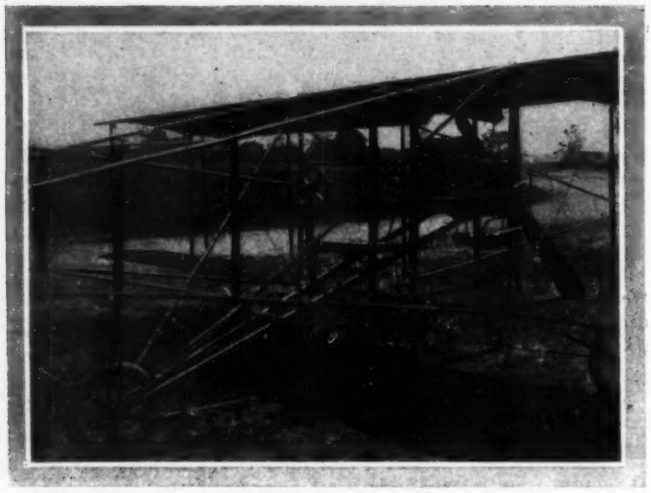
There are three means of control of the machine when in the air. It is elevated or lowered by manipulation of a box front control, operated by pushing or pulling on the hand steering wheel. It is turned to right or left by the movement of the vertical rudder in the rear, controlled by turning the steering wheel to right or left. Lateral equilibrium is maintained by two movable tips at the extreme ends of the wings, hinged half way between them and projecting half their length beyond the ends of the main planes. These tips are elevated or depressed by the movement of the operator's body against a steel tube shoulder brace plainly seen. The instinctive and subconscious movement of the trunk of the body, away from the side of the machine that begins to drop, causes the tip on that side to present a greater angle to the air, forcing the machine to rise on that side, while a corresponding but reverse movement of the opposite wing occurs, allowing that side to drop. The machine is fitted with a pedal to cut out the ignition and to apply a brake to the front tire. This is useful while landing.

The aeroplane has a speed of thirty-five to forty miles an hour, but must attain a headway of nearly thirty miles before rising from the ground. This is due to its light weight in proportion to the load it must carry. And presenting less surface than the earlier machines, it is to be hoped that it will have to progress at higher speed and prove correspondingly more stable. Moreover, it is probable that this is the best aeroplane in the United States, barring only the Wright machine, than which it is better finished and has a more workmanlike appearance. It remains to be proven more efficient, either in maneuvering or straightaway flight.

Sharing with Curtiss the honors of entertaining the crowd of 10,000 people present, were the glider of W. H. Martin, and the balloon ascensions. Martin comes from Canton, O., where he has made many successful gliding flights, but to-day he did not have the best of luck. Worse than that, he came very close to losing his life. The glider is a monoplane and, lacking a starting means, an automobile was used to tow it. This proved a trifle too speedy, and the bewhiskered operator had a thrilling experience. After the machine had lurched and plunged along for quite a distance, it took a sudden lurch into the race track fence, smashing both fence and glider.

Some excitement was also furnished by the balloon ascension and consequent parachute drops, particularly when the drop made by a woman amounted to about two miles. The dangerous feature of this last drop lay in the fact that the parachute was not properly attached to the balloon, but despite this the woman continued to go up before trying the drop, even after receiving the signal to descend.

An aeroplane built by Frederick Schneider refused to fly, although engine and propellers seemed to be working properly.



Curtiss Aeroplane at Close Range—A Rear View

FRANCE APPRECIATES AVIATION SUCCESSES

PARIS, June 24—The cause of aviation in France has received a substantial reward by the awarding of the Osiris prize of $20,000 to Gabriel Voisin and Louis Bleriot. The terms of the will of M. Osiris were that the million francs which he bequeathed should be invested and the revenue devoted to recompense the most scientific discovery or reward the most useful work. The selection was to be made by the Institut de France every three years. Only two previous awards have been made, one being to the director of Pasteur's Institute, and the other to M. Sorel, historian and member of the academy.

In the opinion of the Academy of Sciences, which had to report on this subject, the most important work in the year 1908 was the flight of Henry Farman across country on a Voisin biplane, from Bouy to Rheims, and the first round trip across country made by Louis Bleriot, from Toury to Artenay and return. As the two men were once in partnership, it was believed that the letter of the will was being observed by dividing the prize between them, giving $10,000 to Gabriel Voisin, originator and builder of the machine used by Farman, and an equal sum to Louis Bleriot, builder and pilot of the first successful monoplane flying machine.

The prize had to be awarded to Frenchmen, therefore the exploits of the Wright Brothers in France, last year, could not be taken into consideration.



Motor and Propellers of Curtiss' Air Conqueror

METROPOLITAN AGENCY FOR AEROPLANES

NEW YORK CITY, June 25—As indicative of the wonderful strides which the successful navigation of the air has made in the past couple of years, the taking of the local agency for an aeroplane is most significant, for this puts the final OK upon the device. The firm whose products has made this much progress along the line of reliability is the Herring-Curtiss Company, Hammondsport, N. Y., one of whose machines, with Glenn S. Curtiss at the wheel, made such a successful series of flights in this city the past week. The company which has taken on the selling of the Herring-Curtiss machines is Wyckoff, Church & Partridge. An aviation department has been established to take care of this work alone, which will be kept separate from the automobile department.

Not only was the agency secured and plans made to sell a number of the machines, but the first aeroplane was actually disposed of to A. P. Warner, general manager Warner Instrument Company. This sale, too, took place within a few hours of the clinching of the agency agreement. With this sale, attention is called to the facilites of the Curtiss factory for the first time, these being such as to enable delivery within fifty days of the placing of the order. The Wyckoff, Church & Partridge aviation department will be in charge of I. H. Manning, well known in automobile circles in the metropolis.

PROGRESSIVE ST. LOUIS PREPARES AERIALLY

ST. LOUIS, June 28—With the completion this week of the gas mains, the Aero Club will have complete aeronautical grounds, the first built exclusively for this use in the country. From the gas house a 16-in. main is being laid from which a dozen valves will lead for inflation purposes. Besides this, facility for owners of dirigible balloons, provision is made for the accommodation of 10,000 people. The latter includes a large grand stand, under which is space for balloon storage. The club owns two balloons and has three licensed pilots.

The grounds will be ready for use some time in June, and later on, October 9, a series of races for balloons and contests for aeroplanes will be held. For these contests prizes to a value of $4,300 have already been offered, and it is believed that this amount will be doubled before the races come off.

AUTO BUILDER TO ENTER AEROPLANE FIELD

BUFFALO, N. Y., June 28—Like his father, who entered the automobile business early, Edwin L. Thomas intends to be among the first into the airship construction field. With this idea in view, he has formed a company with Carl Dienselbach, of the Aero Club of America, and Dr. Francis Myers, an inventor from Columbus, Ohio. Dr. Myers has invented a machine and is now busy assembling the parts preparatory to a flight. It is expected that the first trial will be held on July 15.

The plans of the company have not been made public, but after the trial, providing that it is successful, aeroplanes will be built in large numbers. It is said that the Myers machine differs from others in kind of engine used, rudder, and size and proportions of the planes. At the test it is proposed to have a number of scientists present so that a successful flight will be appreciated or reasons formulated for an unsuccessful one.

Functions and Frailties of Motor Cylinders

By Thos. J. Fay

CYLINDERS for gasoline motors are made of gray iron castings, excepting in rare instances, as in certain classes of racing cars, when, to reduce weight, increase strength, and guard against rupture, certain grades of steel are used. The history of cylinder work, in all classes of engines, is closely coupled to castings of gray iron, and in view of the ease with which castings of this material may be moulded into intricate shapes, it would seem as if it is the ideal material to employ. There is more to be said about cast iron for cylinder work than the mere statement that, with this material, cylinders are easily made, and that the material is low priced. It is not because the pound price of cast iron is low that it is used; every automobile is in the same category in this regard, thus showing that the cost of the material is no criterion, for if it were, the very high priced examples of automobiles would have better materials for cylinders than will be found in the cheapest cars made.

From the point of view of cylinders, all automobiles are on the same basis, in that all of them use cast iron; this is not to say that every cylinder made is exactly on a par from the quality point of view; there are wide differences in details of design; all castings are not equally made, and the results in practice are not alike. That the cost of the cylinders should interfere as between the several types of cars, is not believed, on the count that inferior cylinder work is even more costly than the other kind, due to the vicissitudes attending the process. The cylinder question partakes of difficulties, not only because "wasters" are a loss, but for the reason that delays are expensive, and the machining work that has to be expended on cylinders before they are "uncovered" sufficiently to judge of their qualities, is at a cost, almost equal to the value of the work required to machine them to completion.

Superior Cylinders Follow Correct Designing—Granting that cast gray iron is a suitable material, it is at once possible to discuss peculiarities of the metal, and by so doing, learn, in what way trouble is likely to follow, and how to avoid it. Fig. 1 depicts sections of cast iron, of various shapes, and section A is circular, of some thickness, resulting in a "pipe," extending down through the core. The pipe does not always extend for the whole length of the core of such a section, but the core material is never so sound as the "skin," or the metal for some depth under the skin. Section B indicates the defective heart of a round section; if a hole is to come in such a way as to drill out the core of the section, the designing question is not so serious and a round section becomes less objectionable.

The rectangular section C performs in quite a different manner, excepting that a "pipe" will appear for a considerable distance down from the topmost part of the casting. Lack of solidity will occur through all the section, in the zones indicated by darkened lines, which occupy portions of the section diagonally disposed, tapering down towards the corners. Section D shows a modified condition that follows the same rules as laid down for section C. Abrupt changes in direction are attended by defects as shown in section E following along the path as depicted in rectangular sections, and the way to avoid this class of defects is to do away with the abrupt changes in direction, and the bunching of metal, in a manner as shown in section F.

Section G represents a modification of rectangular work, and defects are bound to follow for the same reasons. Section H shows how to avoid this class of trouble, and on the whole it is a fair inference that walls should be of a uniform thickness at every point, and fillets should be as little in area as it is possible to have them, without falling into the path of trouble, due to sharp corners. No casting should be so made that the metal will show a positive change in direction at any point; this rule demands that fillets be introduced where sections join, if they are not in the same plane, but, as before stated, it is the aim to have the fillets as light as possible, for the reason that excess metal will result in unsound castings.

Some Normal Features of Design—Following perfectly uniform shapes, in the design, attended by equal thicknesses of walls throughout, excepting at such points where necessity dictates changes, it will be in order to consider one or two such examples: Fig. 2 shows a section of a cylinder, with uniform thickness for the most part; at the bottom, approaching the flange, which is of greater thickness than the walls, the section is thickened up as it approaches the flange, with the result that most of the troubles, due to changes in section, are aborted because the change in section is not abrupt. The "oil-boss," which is shown opposite the piston-pin, on the lower dead center, is of circular section, and the core will be defective, as depicted in section A, Fig. 1, but since the core will be drilled out, as shown in section B, Fig. 1, it follows that the defect will be of no practical significance, provided the boss is as small as it can be in practice. It is of the greatest importance to avoid the use of more material in this boss than necessity dictates, and the old fashioned practice of making the boss very large, in order to have it available, even if it is shifted in the process of moulding, should not be resorted to. In cylinder work, careful moulding is one of the requirements, and the foundryman may not be permitted to do such indifferent work that the bosses will have to be much larger than the actual necessity, merely to compensate for indifferent foundry work.

Sometimes ribs are placed on cylinders, as shown in Fig. 3, the idea being to strengthen the cylinder walls to defeat the tendency of the cylinders to disrupt around the girth near the lugs used for holding purposes. This plan may result in shrink holes in the section of the cylinders, at, or near the inner surfaces of the bore of the cylinders, and the hardness of the metal will vary, due to the opening of the structure approaching the ribs. No cylinder, made with ribs, will have a uniform texture

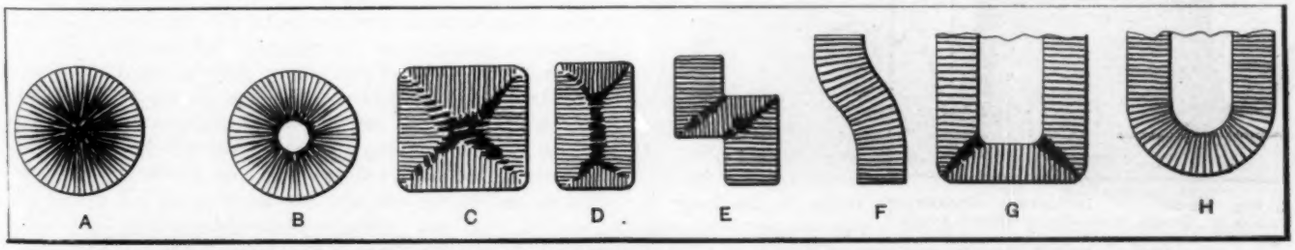


Fig. 1—Characteristic shrink imperfections due to different shapes, and sections, of cast gray iron used for cylinders

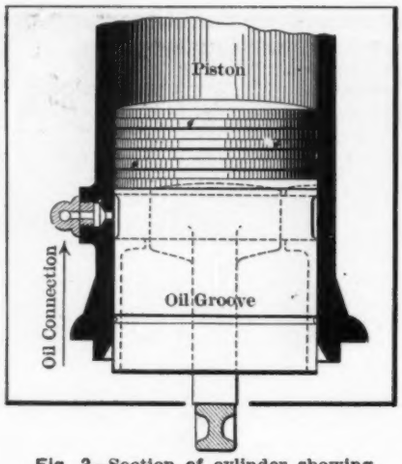


Fig. 2—Section of cylinder showing position of oil boss

throughout, nor is it necessary to risk failure in this way; many examples of cylinders are to be seen at every hand, in which the compression is high; the walls are quite thin, and ribs are absent, and the results, in service, are quite in keeping with the most exacting expectations. Cylinders so made wear evenly, and the compression is not lost, due to scoring, which always follows if the texture of the wall is of varying density, as it is likely to be with ribs or equivalent construction.

Piston rings, since they always press out, against the cylinder wall, with quite a little force, if the rings are tight against compression, will wear evenly if they are given a uniform motion, and if the walls are of equal hardness at all points; this condition does not always obtain in practice, and the rings tend, in consequence, to embed in the metal of the walls at different rates, depending upon the location. At the top of the stroke, for illustration, the rings burrow into the walls, just at the point of reversal of motion, and it has been found that the extent of the damage done will be a minimum if the top ring on the piston is allowed to overlap slightly, as shown in Fig. 4; this is accomplished by recessing the cylinder walls at the top of the stroke, in such a way that the top ring will extend above, for a short distance. This practice is common in steam engineering, but it is not so prevalent in automobile motor work, and it is contended by some designers that it is not necessary to go to so much trouble.

Since piston rings press outward all the time, they are very troublesome when the piston is being inserted into the cylinders; this difficulty is overcome, to a considerable extent, as shown in Fig. 2, by means of a beveled counter bore. As will be observed, it is possible to press the piston up against the bevel, so that the rings will be compressed, but it is not always the case that the bevel is adequate for the purpose. The bevel should be all that the design will afford, without endangering the strength of the cylinders at this point, and it is even a good idea to be a little liberal, in order to be sure that the pistons may be inserted into the cylinders without damaging the rings by pinching them.

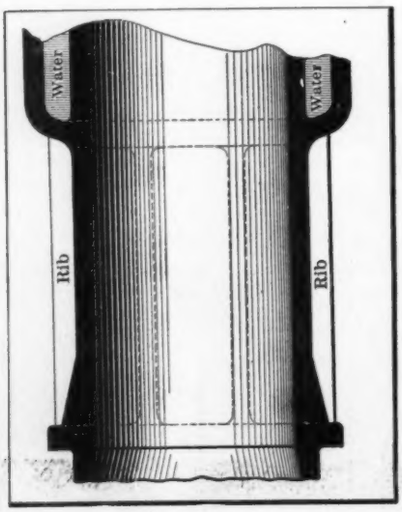


Fig. 3—Section, indicating thickening walls at flange, and ribs disposed around girth

Differences in Expansion Have to Be Considered—The piston should be a free fit in the cylinder, due to effect of heating, and the allowance to be made for differences in expansion will depend upon the design, not only of the cylinder, but the piston, as well, in every case. The piston will expand, due to heat, more than will be the amount of expansion of the cylinder, if the latter is water-cooled; of that there is ample evidence, at every hand. Were the piston designed for water-cooling, and with walls of the same thickness as the walls of the cylinder, in which the piston is intended to reciprocate, the difference in expansion would be limited to such as might be traced to differences in diameters, which would be a negligible quantity under fair conditions.

As it is, pistons are not water-cooled; they are not designed with the same thickness of walls, and they do heat in excess; the result is that they do expand more, and the difference is enough to abort good performance. Since no form of motor will escape the ills of a "neat" fit of the pistons, there is much ground for discussion when the question of the proper clearance is to be settled upon, although some designers claim that a slight clearance is all that the occasion requires. Since pistons do not heat up as much at the bottom, as they do at the head, it follows that the diameter may be slightly conical, and the average fit of such pistons will be superior to the fit in those that are parallel, if they have the same clearance as the maximum that obtains in the cases of the conical types. Noise due to slack pistons is very annoying, and that motors so designed will give very good satisfaction, is not taken for granted; as a rule, this noise is not found in new motors, even when the clearance is more than is looked upon as necessary, and for the most part, it is claimed that this noise comes in when the cylinders are worn to an elliptic approximation, as they will if the pistons are short, and if the compression is high enough to make the pressure very great on one side. When pistons are, in length, about 1½ times the bore of cylinders, they seem to work for a long time without engendering the elliptic formation, and that they should be barely long enough to serve the purpose, is indicated when account is taken of the ills of excess weight of reciprocating parts.

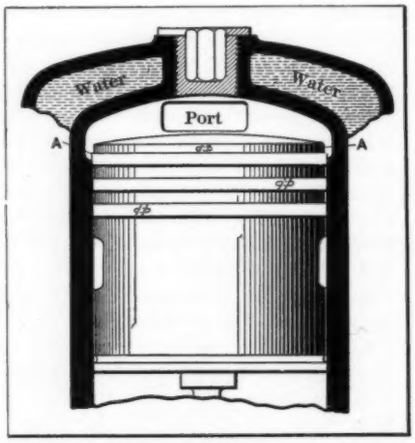


Fig. 4—Section, depicting counter-bore at top of stroke

Approximate Clearance Required—In certain of the motors to be found in cars of some reputation, it is the practice to make the clearance on a basis as follows:

Bore of Cylinder.	Diameter of Piston.
4	3.990
4½	4.485
5	4.980
5½	5.475
6	5.970

In a certain case, in order to be able to fix upon the requisite clearance, pistons and cylinders were heated up to different temperatures, and measurements were then taken, to ascertain the difference between them from the point of view of expansion; it was found that the pistons heated the most, and that the difference in expansion accorded fairly well with the values given above. In these experiments, the cylinders were of the water-cooled type, T design, and the bore was 4½ in. In air-cooled cylinders, of the same size, it was determined that the difference in expansion was less; about two-thirds, in fact, of that which obtained in the water-cooled motors. The cylinders in air-cooled work heat more than in the other class, and the difference in temperature, between pistons and cylinders, is somewhat less; it is a reasonable expectation, under the circumstances, that the difference in expansion will be diminished. It does not, of necessity, follow that the problem, in connection with air cooling, will be any less acute.

(To be continued.)

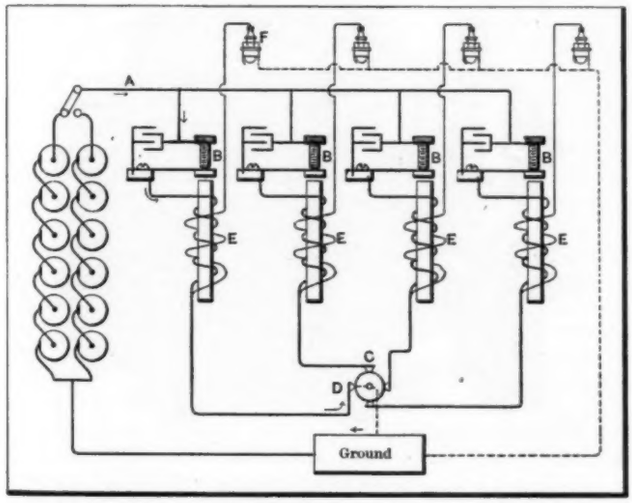
THE DEVELOPMENT OF MAGNETO IGNITION

By H. G. Deupree

PERFECTION of the high-tension magneto has answered a question which assailed the pioneers in the development of the multiple cylinder, changeable speed, internal combustion engine—namely, the production of an efficient ignition system. The high-tension magneto is probably the final word on gasoline engine ignition and has assisted materially in the perfection of the motor, the heart of the car.

It is a comparatively recent product, the result of long years of successful experiment and development by expert mechanical and electrical engineers. This progress may be marked by three successive steps and each period according to the chronological order may be named as follows: The adoption of the battery, the adoption of the low-tension magneto and the universal adoption of the high-tension magneto.

A perfect ignition system is the one which accomplishes the production of a single, hot spark, at either low, average or highest motor speed at the exact instant it is required to effect combustion and under varying conditions as to time; offers a large range for the advance and retard of the spark, a permanent



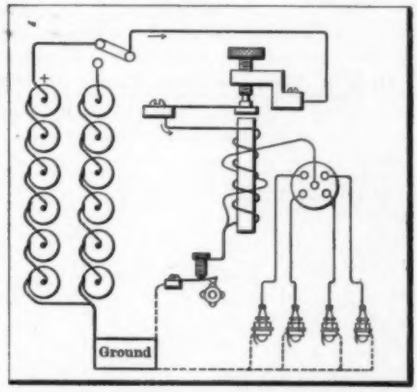
Wiring Diagram Four-Cylinder Engine with Individual Trembler Coils

supply of electricity; and withal, is a system of simple construction requiring practically no attention; one free from fine and sensitive parts, which can not be affected by jolts or strains under the stress of strenuous touring or racing conditions; and built with broad margins for the performance of its functions when the carburetor is not properly adjusted, when there is a leakage of compression, or when the spark plugs are fouled and the motor conditions are bad.

Perhaps the logical order of discussion of this all important question of ignition is the one taking up the various types of ignition according to the time of their appearance, adoption and recession. This would mean the discussion of first, the battery; secondly, the low-tension magneto, and thirdly, and lastly, the high-tension magneto. The last named should be divided into the leading sub-divisions in which the commercially successful types of magnetos, as made to-day, are naturally placed according to the principles of construction which differentiate them.

Electric ignition of explosive engines was accomplished on slow speed engines by the use of the primary coil and later by the low-tension magneto. Both of these earlier systems left something to be desired, but the attention of the men working for the development of the motor was first turned to the perfection of the battery. Then came the use of the low-tension magneto, which had worked satisfactorily upon slow speed stationary engines. We will take up the situation at the introduction of the high-speed motor and consider the forms of ignition in use at that time.

Some Earlier Attempts and How They Resulted—The earlier attempts at battery ignition for the motor resulted in the use of dry batteries, a non-vibrator induction coil and a special circuit breaker attached to the crankcase of the engine with a circuit-breaking cam attached to the camshaft. This system was later modified by putting a very high-speed vibrator on the induction coil, as the non-vibrating type drain a battery very quickly. These improvements on the battery were all made on the prevailing theory that a single, powerful hot spark was not as effective nor as sure a system of firing the compressed gas as the shower or series of sparks created by the battery. It was thought that a series of sparks must ultimately produce the explosion, even if the first spark was too weak or if the charge was not of proper mixture or was not sufficiently compressed when the earlier sparks occurred.



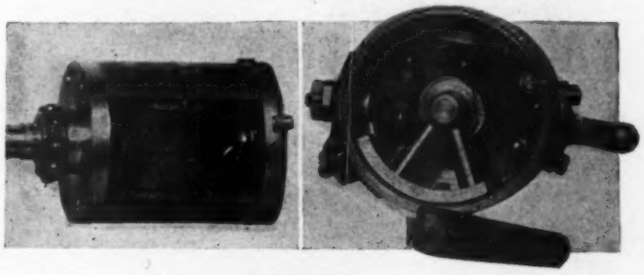
High Tension Wiring with Single Coil

It soon became evident, however, that the battery system with vibrators and individual unit trembler coils, or with vibrator and single coil (for jump-spark ignition) could not always be depended upon to fire the cylinders of a multiple cylinder engine with the greatest efficiency. Vibrators are operated by means of magnetic attraction resulting in a mechanical "lag" in breaking the circuit, and consequently the timing of the spark so a discrepancy in the timing occurs such that the cylinder will not fire when the pistons are in the same relative positions.

Any difference in the timing of the explosions results in a very appreciable loss of motor power, since the pistons are not in the proper position when the explosions exert the greatest force, and produce the greatest amount of "torque."

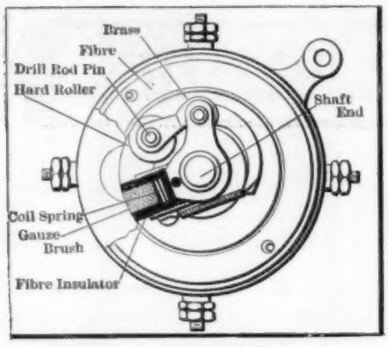
The battery system of ignition may be divided into two general classes. One system employs a commutator or timer and a vibrator coil for each cylinder of the engine. For instance, in a four-cycle, four-cylinder engine there will be one commutator, for vibrators and four spark coils. This system is the most extensively used of the battery ignition systems.

Battery ignition system is one that employs a single vibrator



(a) Primary armature winding (b) Primary circuit breaker

High Tension Magneto Parts Shown in Detail



Common Form of Timer

and single coil, and commutator and multiple distributor, regardless of the number of cylinders. Still another system which may be mentioned is the battery system employing a timing device somewhat similar to that generally found in magnetos. While this has eliminated to some extent the objectionable "lag" of the spark, the device is complicated and retains the disadvantages of the battery systems, such as the ever-present necessity for frequently recharging them.

How a Four-Cylinder Timer Works—Take a four-cycle, four-cylinder engine, equipped with battery and four vibrators and four individual unit trembler coils and a commutator or timer. Inside the rim of the commutator are four insulated segments set diametrically opposite. A small bar, driven usually from the cam shaft, and carrying on its outer end a little roller, which also revolves, turns on a pivot in the center of the commutator when the motor is in action. As the metal wheel on this bar comes in contact with the metal segment, imbedded in the hard rubber perimeter of the timer, the electrical circuit is completed. Each segment works with one particular vibrator and coil for the creation of the explosion in a certain cylinder.

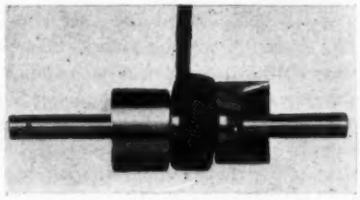
The coil referred to consists of a soft iron core, about which is a primary and secondary winding of copper wire. When the electrical circuit is completed through the commutator or timer the iron core becomes magnetized. This magnetized core exerts an influence on the vibrator, causing its armature to vibrate. As the vibrator is pulled toward the magnetized core it breaks the electrical circuit, and it is at this moment, when the circuit is broken, that the spark occurs.

It is well to remember that the spark is caused when the circuit is broken or interrupted. The contact points on each vibrator must be in the best condition, the wiring must be perfect, and the insulation must be in perfect shape—in fact, to get the battery's best efforts everything must be perfect.

Theoretically, the instant the little roller on the end of the bar comes in contact with the segment on the rim of the commutator the circuit is completed, and the core is magnetized, the vibrator is attracted towards the core, the circuit is broken, and the spark occurs. But let the vibrator be put into operation and then the "lag" or variation in the timing happens.

Vibrators Work and Work Continuously—When the engine is running at a reasonable speed the vibrators are in motion continuously. Instead of stopping before they are to be used again they will keep on vibrating and the circuit will be complete when the vibrators are not even in the circuit. The commutator closes with the vibrators in many different positions and the spark cannot occur in any one cylinder until the vibrator comes to its position with the circuit closed, the magnetic action of the iron core of the coil attracts it again, opening the circuit, and by this time the spark occurs too late for the best results.

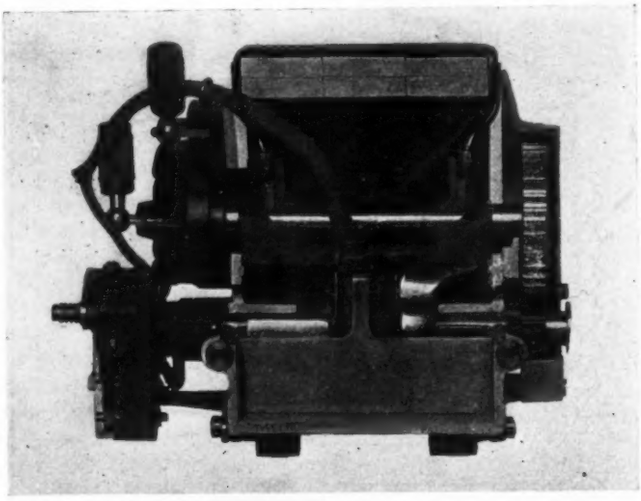
Even when the vibrators are working perfectly therefore, the timing varies an infinitesimal amount of time less than the periodicity of the vibrator. That is the substance of the law deduced from the operation of the vibrator, and it was that small imperfection of the battery system, combined with the expense and trouble of the recharging, which caused engineers to look for a more perfect device.



Inductor Magneto Shaft

The attempt to adopt the low-tension or make-and-break magneto, which had proven satisfactory on low-speed, stationary engines, was the logical step. Faraday had long since discovered that a revolving winding of copper wire in the magnetic field between the pole pieces of "U" magnets would generate an electrical current in that winding or coil.

The low-tension magneto creates a make-and-break, or wipe spark only, as its current is of low voltage and not capable of overcoming the resistance furnished by the gap in the spark plug. This is a very simple magneto, however, and easy to manufacture, as it is probably the simplest current generator known. The complication with this system is mechanical, not electrical, and comes in the construction of the make-and-break mechanism, which must be operated mechanically.

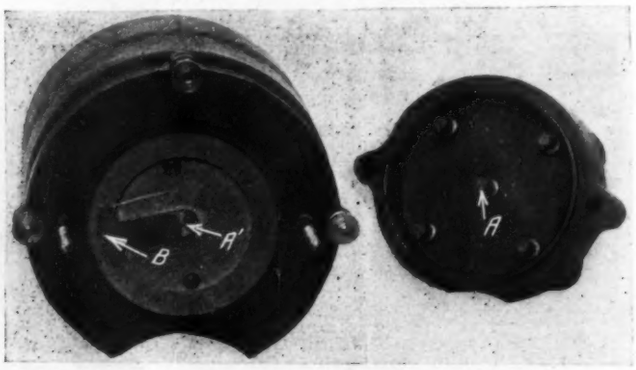


Longitudinal Section Through Inductor Type of Magneto

This creation of the spark is accomplished by igniters or electrodes which project into the combustion chamber of the engine cylinder. As these points separate the spark is made. These electrodes are naturally very complicated and delicate. They quite frequently wear down rapidly and their presence in the combustion chamber makes it impossible to build the cylinder proof against the leakage of compression.

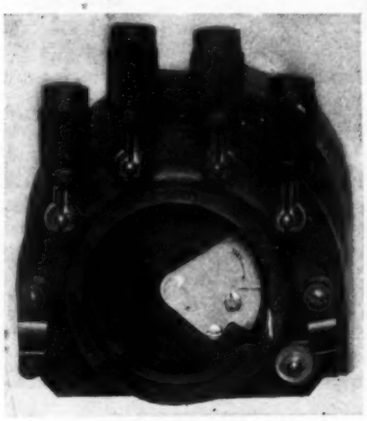
America Adopted the High-Tension Magneto First—The fact that the Eurpeans first adopted this system and manufactured this low-tension, make-and-break magneto in quantities, gave them a reputation for success in magneto construction which does not belong to them as far as the high-tension magneto is concerned. The high-tension magneto was first an American idea.

As early as 1893 certain American engineers were experimenting and developing a high-tension magneto. It was of the inductor type, however, and when it had been perfected to a point of practical usage on the engine it was found that there was no market for this epochal mechanical ignition system.



Earlier Form of Moving Contact or Distributor

Americans mostly were content to see whether success attended the efforts of the Europeans in the development of the self-propelled vehicle, and the few engineers on this side of the Atlantic who brought out motor appliances were forced to wait until the foreigners had proven the automobile a practical working vehicle, designed to revolutionize modern transportation methods.



Distributor for Inductor Type

When success did crown the efforts of the European pioneers in the manufacture of the motor, far-sighted American experts, who were perfecting accessories, had to wait until the Europeans had attained some success in these particular departments before an American market for them was created. Because of this fact the European engineers get credit for a number of important motor improvements which were really produced and perfected on this side of the Atlantic before they even received the attention of the foreigners, who got the credit for all improvements.

So it was with the magneto. It is hardly necessary to discuss the evolution of the high-tension magneto in detail, so this article will deal only with the high-tension magneto as found to-day. High-tension magnetos may be divided into two general classes, the nomenclature in this case being based upon the nativity of their earlier propagators. One may be called the American high-tension and the other the foreign magneto. The American type of high-tension magneto is now used on a majority of cars.

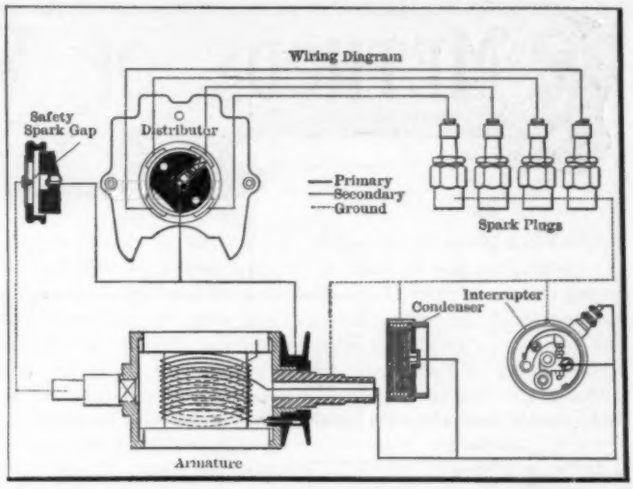
Revolving Winding Marked the Early Types—In the earlier types of magnetos exploited in America the principal of a revolving winding in the magnetic field inducing a current in that winding was retained, but a single breaking device was added to interrupt this primary current and a high-tension current was induced in an induction coil, which was in reality a non-vibrating transformer coil. This system, however, involved the use of carbon or wire brushes, and collector rings to collect the current from the revolving primary winding before it could be taken through the circuit-breaking mechanism.

These moving contacts complicated the construction to a degree past the understanding of the average motorist. However, the use of the induction coil made it possible to insulate properly the wire used and also permitted of a dual ignition on one set of spark plugs, as dry batteries could be wired through the same transformer coil without additional trouble.

In 1907 a new type of magneto was brought out. It was the inductor type, now used so extensively. By revolving a solid steel shaft, on which are two drop-forged steel inductor wings, the magnetic field was reversed twice during each revolution and created two electrical current waves or impulses per revolution. The direction of the flow of magnetism was changed at each impulse, thereby making an alternating current.

By imbedding a circular-shaped stationary winding of magnet wire between the poles of the magnets and around the inductor shaft, it was possible to reverse quickly the magnetism through the winding, consequently generating a powerful current in it. This system made it possible to carry the current directly through the circuit-breaking device by means of heavy lead wires without the use of carbon brushes or collector rings. It also eliminated revolving windings and all moving contacts, and consequently many sources of trouble.

The current is carried to the transformer coil, located on the dash-board, where it is jumped up to the high potential necessary for creating the hot jump spark. From the transformer coil the current is conducted back to a hard rubber distributor on the face of the magneto, and from there is carried to the spark plug. The distributor shaft, which is located immediately above the inductor, revolves a metallic segment past the terminals of the wires leading to the spark plugs. The high-tension current is carried to this segment and transmitted to the spark plug.

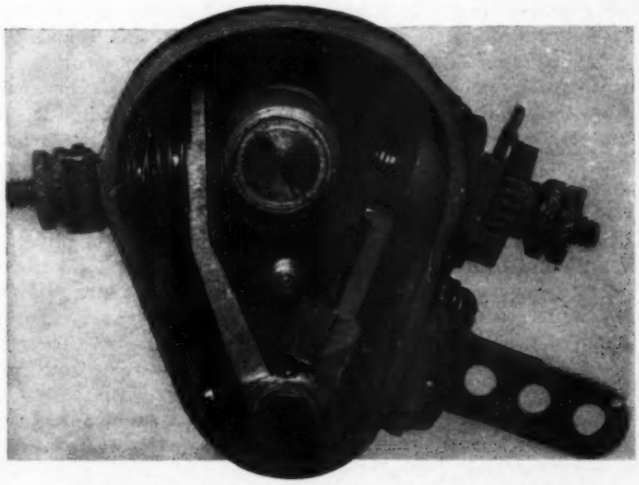


Wiring Diagram Compound-Wound High Tension Magneto

Foreign Practice Differs in the Location of Winding—The European type of magneto has both its primary and secondary windings of wire inside the magneto. The wire varies in length from three to five miles and requires the greatest care in winding to get it into the allotted space. Condensers are also crowded in the space between the pole pieces of the "U" magnets. Brushes are used to transmit the current from the moving windings to the distributor and collector rings.

A magneto of the latest type, and gear-driven, guarantees what may properly be called perfect timing. A hot spark is delivered in the cylinder under compression at the exact instant desired. The inductor type of magneto also offers a reliable system of starting from the seat without cranking. The motor always stops with the magneto in such a position that the first spark will occur in the cylinder under compression. Where batteries are used a push-button is provided and by merely touching it a spark will be made in the cylinder which is under compression.

The battery was improved to its highest point of perfection; the low-tension, make-and-break magneto with its electrodes was then adopted, and then came the high-tension magneto, the crowning effort of expert mechanical and electrical engineers in the effort to produce an ignition system capable of performing its function in a manner to assist most in getting the maximum power out of the motor with the least complication and trouble after the original outlay.



Inductor Magneto Double Cam Circuit-Breaking Device

METHODS OF VALVE GRINDING

By D. R. Hobart

VALVE leakage has its origin in a variety of causes, some of which are due to features of construction, as warping, following the use of inferior material; defective design; lack of even distribution of the cooling medium, and when the water-jacket is shut off for a part of the way around the seat. A second and prolific cause of leakage is due to grinding in the valve, thus reducing the clearance between the valve-stem and the lift; the valve cannot seat after the interference, and it will be necessary to adjust the lift enough to allow the cam to rotate for a complete revolution, without disturbing the valve, on its seat; the usual practice is to allow a clearance between the valve-stem and the lift, the amount of the clearance being a variable, depending upon the diameter of the roller, and the shape of the cam; which clearance will not be the same for the respective designs of motors. Sullage, in the process of casting, is prone to float to the region of the valve-seat, because it is near the top, in vertical casting work, and in this case, the seat is defective, and leakage is a natural sequence; in a case of this sort, it is a new cylinder that will cure the difficulty. Then, there is the question of weak springs to contend with, and in such cases, deposits of carbon are likely to settle on the seat, and prevent the valve from coming down tight; new, strong springs will cure this trouble.

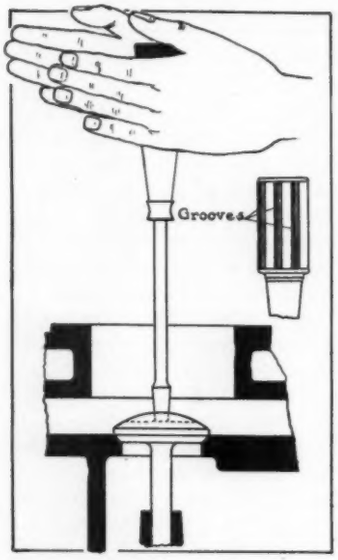


Fig. 1—Method of using screwdriver for grinding valve

Tools Used in Grinding—Shops vary in the tools or apparatus used in valve grinding. Some adhere to the screwdriver, the Swiss file for dressing the faces, and the rose-reamer for truing the valve seat. Others employ special apparatus or drill stocks for the actual grinding and do not true either the seat or the valve face. A third class true the faces in a special tool and either do or do not ream the seats, according to the amount of wear on the latter. It is probable that each shop has excellent reasons for using its own particular apparatus and manner of grinding, from motives of economy of time and labor or by reason of special conditions in the motors. Grinding compounds consisting of two or more grades of emery and rouge paste are universally used, being either made up in the shop or bought ready mixed. The writer inclines to the use of either the screwdriver or grinding machine, truing the valve face in a truing tool and finishing the operation by grinding with emery and oil, using the reamer only when the seat is badly scored or pitted.

Grinding Automatic Valves—Automatic valves and those operating in cages are ground in a similar manner to other valves, and in fact with greater ease, as the valve and its cage can be removed from the motor and the work done in a vise. The test for tightness with gasoline can be better observed, and both seat and face can be examined at any time; whereas, when the seat is part of the motor casting, an electric light is needed for any accurate inspection. It should always be remembered that after a valve has been ground, the stem has to all intent practically elongated, and a readjustment of the spring on an automatic as regards strength and the nut on a mechanical valve for proper clearance will be necessary.

Grinding in with a Screwdriver—Probably the screwdriver is used to a greater extent in valve grinding than either the drill-stock or any one of the excellent grinding apparatus now on the market. The valve is usually given a preliminary examination for scores or deep pits, and if any such are found on the face the latter is dressed with a Swiss file or coarse emery cloth. A handful of waste or a cloth is now put in the valve port to prevent particles of metal or the grinding material from getting into the cylinder, and the valve face coated with a paste of fine emery powder and oil. The valve is now put in place and the blade of the screwdriver inserted in the slot in the head of the valve. The handle of the screwdriver is now held between the palms of the hands, as in the sketch, and a series of oscillations through a small arc given to the valve by moving the palms in opposite directions. After about thirty of these oscillations have been given, the valve is lifted from its seat, given a half turn, and reseated for further grinding in the same manner. This operation should be continued, with occasional additions of oil and emery, until the valve face and the seat appear to be bright for their full width around the circle. Both seat and face should then be washed with gasoline, and care should be taken that no particles of emery are allowed to remain thereon when the valve is put in place. The valve is now seated and tested for tightness by pouring gasoline into the chamber. If there is any leakage past the valve, it should be reground, and again tested until found to be tight. A continuous rotary motion should never be used in grinding, as this will cause the emery to "ball up" and cut a groove in either the valve face or the seat, nullifying the operation and producing a leaky valve. The waste or cloth should be removed from the port as soon as the valve is properly ground, as, should it be allowed to remain, it will be sucked into the cylinder and burned, dirtying the valves, or, if not thoroughly consumed, preventing the exhaust valve from operating. Waste usually contains small bits of metal or emery, and these will score the cylinder or piston, hence the need of removing the waste as soon as the grinding is finished.

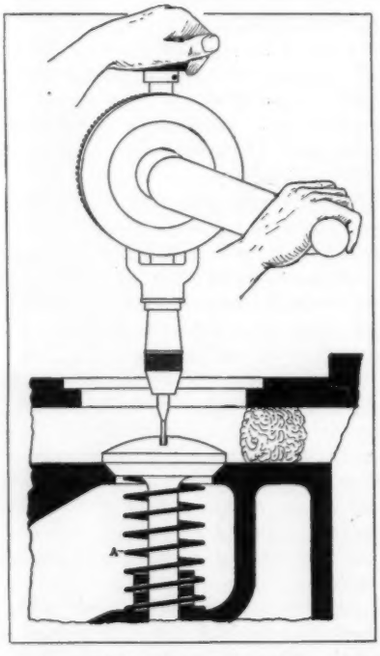


Fig. 2—Grinding with drill stock, showing lifting spring A

Light Pressure to Be Used—For the best results, light pressure should be applied and the operation performed slowly. If the stem is a loose fit in the guide, care must be taken not to allow the valve to wobble on its seat while being ground, or the surfaces produced will be more or less convex, instead of being flat, and will leak. The method of operating the screwdriver has been found to be one in which a light, but firm, pressure can be constantly maintained on the valve without tiring

the operator, whereas the usual way, where the handle is held in the palm of the hand and the grinding done by a motion of the wrist, is tiresome and puts too much pressure on the valve. Certain screwdriver handles lend themselves better to grinding than others, an excellent handle being shown in Fig. 1, which illustrates this method of operating the screwdriver. In unseating the valve to give it the half turn, it can be easily lifted by the thumb and finger on the stem below the guide.

Using the Drill-Stock—The drill-stock or rotary drill is employed to a considerable extent where a quantity of grinding is to be done, or where rapidity is desirable. A screwdriver bit is inserted in the chuck and the operation conducted as in the case where a screwdriver is used. Owing to the multiplication between the driving and the driven bevels, the crank should be rocked through a small arc, instead of being rotated. A spring should be fitted within the valve chamber to unseat the valve when it is desired to examine it or when a half turn is to be given the valve on its seat. The spring, which is shown at *A*, Fig. 2, operates as soon as the pressure on the drill stock is released and is of just sufficient strength to overcome the weight of the stock and bit. A plug of waste is shown in position to prevent emery or metal particles from getting into the cylinder.

Valve Grinding Machines—To facilitate the operation of

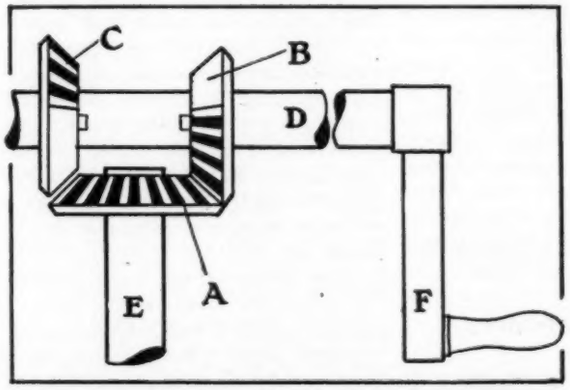


Fig. 3—Mechanism of a typical machine for grinding

grinding, a number of special machines have been brought out to take the place of the screwdriver and drill-stock. For the most part, such machines are constructed to give a limited partial rotation to the valve, whether the handle is rotated or moved to and fro. One well-known model, which is shown diagrammatically in Fig. 3, has three bevels, *A*, *B* and *C*, the first being fastened to a vertical shaft, *E*, to which is attached the screwdriver bit, and the others fastened to a horizontal driving shaft, *D*, operated by a crank *F*. Bevel *A* has its full number of teeth, but *B* and *C* are "mutilated" and are so arranged the teeth of one bevel at a time act on those of bevel *A*. A casing fitted with a handle encloses the mechanism. It will be readily seen that as crank *F* is rotated, a rotating motion, first in one direction and then in the opposite one, is imparted to shaft *E* as the teeth on bevels *C* and *B* come successively into mesh with *A*. Consequently, when grinding a valve, all that is necessary to do is to rotate crank *F* while supporting the machine by the handle, stopping occasionally to allow the unseating spring to lift the valve, and, after giving it a half turn, continuing the rotation.

Where Turning the Valve Is Economical—In cases where a new valve is to be ground in on a well-worn seat or where the valve is heavily scored or carbonized, it will be more economical to turn the face of the valve, either in a lathe or in a special tool, such as is shown in Fig. 4. This tool consists of ing fenders, etc., is illustrated in Fig. 5. A block of steel, *B*, is held against the head of the valve, *V*, and the latter rotated on its seat by means of a screwdriver blade, *S*, inserted in the slot in the stem. The face having been previously trued in a tool like that shown in Fig. 4, it is surprising the short time needed a stock, *H*, to which is attached a head, *J*, and on which are

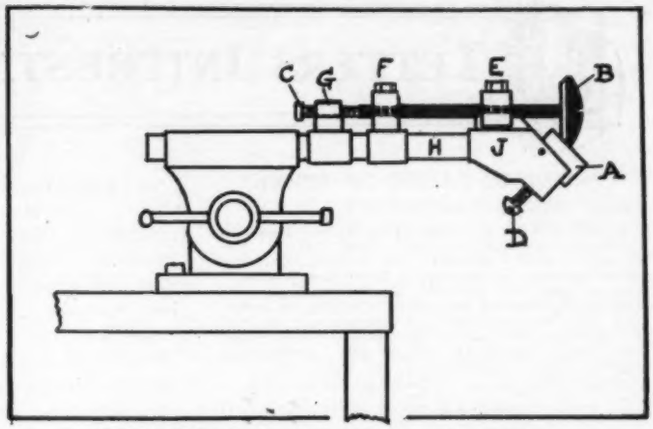


Fig. 4—Valve-truing tool with valve in position

slidable a supporting rest, *F*, and a tail stock, *G*. The head carries a supporting rest, *E*, and a pin on which is pivoted a cutter, *A*, whose angle with regard to the axis of *H* can be varied by means of a screw, *D*. The tail stock carries a screw, *C*, to regulate the depth of cut of the cutter, *A*, when the valve is in place. To true the valve face, cutter *A* is adjusted to the required angle —usually 45 degrees—and the valve put in place, as at *B*. The caps of the rests, *E* and *F*, are screwed down until the valve can be revolved but cannot move sideways nor wobble. Screw *C* is then set up for the required depth of cut and the valve revolved by means of a screwdriver or brace and bit. While this operation sounds complicated, it takes considerably less time than when the valve is ground in on its seat. Any carbon deposit is quickly removed and the face kept true at the same time, whereas, when the Swiss file is used, the result is too often a series of irregular surfaces, which must be trued in grinding on the seat. Having trued the face of the valve, it will take but a short time to grind the seat to correspond. Where the seat is not too badly worn, this preliminary truing of the valve face will often obviate the use of the rose reamer or other seating tool. It will be evident from the above that time is saved over the usual process, in eliminating at least one step therein and in doing away with considerable halts for examination of the work, reapplications of the grinding medium, etc.

A Wrinkle in Grinding Valves on Opposed Motors—The arrangement of opposed motors in the chassis often necessitates the removal of the fenders for ease in grinding with the screwdriver or machine, and considerable time is consumed in what would be done comparatively quickly on a vertical motor. A wrinkle whereby such valves may be ground, without removing fenders, etc., is illustrated in Fig. 5. A block of steel *B* is held against the head of the valve *V* and the latter rotated on its seat by means of a screwdriver blade *S* inserted in the slot in the stem, the face having been previously trued in a truing tool. In cases where the stem of the valve has no slot, a pair of gas pliers can be used to grip it, being careful not to mutilate the threads thereon in so doing.

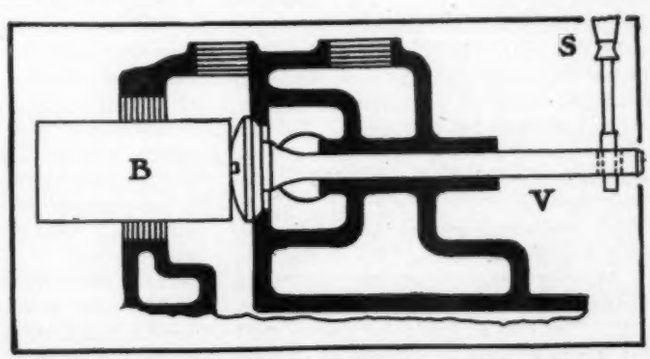


Fig. 5—Block used in grinding valves in horizontal cylinders

LETTERS INTERESTING AND INSTRUCTIVE

PROLIFIC CAUSE OF NOISE

Editor THE AUTOMOBILE:

[1,926]—Will you kindly suggest through "Letters Interesting and Instructive" the cause of and a remedy for a light clanking noise occasionally coming from the left rear axle or emergency brake of a Buick Model 10. The brake spring is sound, nothing is loose, and the manipulation or movement of the car is not affected in the least. Are those bars too long? Or could the differential gearing have anything to do with it?
Weiser, Idaho. DON S. NUMBERS.

If your trouble was more fully explained there would be more possibility of our helping you, but "a light clanking noise from the rear axle" is rather indefinite. It is possible that part of your trouble proceeds from lost motion in the parts of the brake other than the spring and lever, of which you speak. Thus the toggle or cam which operates the brakes may be at fault. The fact that this noise is only heard at times and is not continuous, would make a person think that it is something which is only produced under certain conditions, which either throw an unusual strain upon some hitherto unsuspected part or so bring two parts into relations that they mutually interfere with one another.

If the rear axle, itself, were bent or otherwise altered from a perfectly round and true shaft, this resulting condition might cause a noise such as you describe. You have looked up the large things, possibly it would be well to now investigate every little part, no matter how small nor apparently far related. Invariably a source of trouble like this proceeds from the little and unsuspected things.

CHARGING STORAGE BATTERIES

Editor THE AUTOMOBILE:

[1,927]—Having recently removed to a point where it is impossible for me to have my storage batteries recharged, I would like to be informed through "Letters Interesting and Instructive" as to what precautions should be observed in putting the batteries away, out of service for several months, so as to prevent deterioration during that time. Should the batteries be thoroughly discharged and then carefully washed out to remove all of the acid?
W. A. BUTCHART.
Culiacan, Sinaloa, Mexico.

When it is necessary to put away storage batteries, the usual method advocated is to charge the cells fully and then let them stand this way. In your case, however, this is impossible; so the next best way will be to discharge them, remove all electrolyte, and clean out thoroughly. The reason for letting the cells stand fully charged is to gain the added current which results from standing.

This additional current or building up effect was discussed very fully in the issue of May 27, under the title of "Some Further Ignition Hints," by Morris A. Hall.. The title probably led you to think that it was devoted exclusively to ignition, which was anything but the case.

An excellent article on the same general subject appeared in a later issue of THE AUTOMOBILE, that of May 20, headed "Pointers on the Care of Vehicle Batteries." In that you will find the advice given to have cells fully charged before cutting them out.

If you do not desire to waste current from the batteries it would be just as good a scheme in the present case to fill up with pure distilled water to the proper level, and then let the cells stand in some well-covered place, thus partly charged. The cell would thus build up, as in the case of the fully charged ones, although the gain would not be as noticeable in the former case. This method has the additional advantage that when you decide to use the batteries again they will be ready for use, while if they are discharged and cleaned then when you want to use them it will be necessary to carry them to a place where both acid and a charging station are obtainable. As you have stated, this is impossible, so discharging means much future work. In fact, under the circumstances you might just as well "scrap" the batteries as to discharge them.

ON CARBON DEPOSITS

Editor THE AUTOMOBILE:

[1,928]—Will you please give me some idea of the best method of removing carbon deposits from cylinder heads, piston tops and valves? G. J. O'HARA.
Belleville, N. J.

There are two methods, the mechanical and the chemical. The former means taking the engine apart and scraping. The action of chemical decarbonizers is different, and it is said that they act to dissolve the carbon deposits, which are then blown out through the exhaust pipes in the regular action of the motor.

The best method of all is the preventative method. By this is meant the prevention of the formation of carbon within the cylinders. This can be effected by proper care in selecting the oil used for lubricating the cylinders and the method and amount fed in. Also, care must be exercised in the selection and use of the fuel, particularly the latter, as this may, in extreme cases, be such as to deposit particles of carbon in the cylinders. Care in this direction is well invested, however, as any autoist who has ever dismantled his engine for cleaning purposes can testify.

An excellent plan, very much used in England, is brought into use after the engine has been scraped free of carbon deposits. The parts are then coated thoroughly with a very thin coat of liquid paraffin, which can be obtained very cheaply at any store. This is melted and applied to the parts with a brush.

DIFFERENTIAL ELIMINATION

Editor THE AUTOMOBILE:

[1,929]—I notice that in the June 10 issue of "The Automobile" you publish a cut of my recently patented compensating gear and make favorable comment of the same. This courtesy is appreciated. This late patent was a very slight improvement on my other patent and the enclosed folder will give you a better idea of the working of the improved device, and why it gives a more positive drive than the usual balance gear, practically eliminating skidding. I ran across an article in your paper, issue of April 4, 1907, which showed that you understand the deficiencies of the differential and recognize the need for an improved device for the purpose. Should you wish to publish any further information about the gear, I can send you a working model in wood which clearly shows the principle.
Boulder, Col. EDWIN J. GOULD.

Not only was this substitute for the differential shown and commented upon, but others which appeared to possess merit were also shown and commented upon. Thus, in the description of the Ampere car, April 29 issue of THE AUTOMOBILE, pages 703-705, a device for eliminating this troublesome part was called to the attention of those interested. That they were many was shown by the fact that they came back for more information, as per the Letters in the May 27 issue, page 865, and June 3 issue, page 906.

The article in the April 4, 1907, issue, to which Mr. Gould refers, seems to sum up the situation with reference to the basic troubles of the differential so well that we are reproducing it herewith, completely. It was in answer to a letter, and follows:

The fundamental fault with the balance gear, which is the type of differential used on practically all modern cars, is that it differentiates for resistances instead of for distances, whereas an ideal mechanism for its place would differentiate solely for distance. The effort to drive both wheels, however, while at the same time permitting one to rotate faster than the other, inevitably involves the trouble referred to. Consequently, only when the difference in resistance is proportional to the difference in distance can the differentiating be correct. Fortunately, this is the usual case when both driving wheels are on road surface of uniform character, but if one strikes a slippery spot, while the other is on a dry one, the latter may constitute a non-rotating pivotal point from which a doubly rapid forward rotation of the other may be executed. Or, in a less extreme case, the wheel on the drier surface may continue to rotate, but at a rate much slower than that of the wheel on the slippery surface. In either case, a serious skid may be produced. Moreover, in turning a curve, the action is not to apply the power equally through both wheels under any circumstances. Either one or both of the wheels must slip on the road surface in a degree sufficient to equalize their speeds, or more power must be applied through the outer wheel, because its rate of rotation becomes greater while the tractive stress imparted through it remains the same. A growing realization of these deficiencies of the balance gear seems to be bringing a number of leading European engineers to the belief that it can be discarded with advantage in favor of ratchet and clutch devices. With a ratchet, for instance, the equalizing for varying distance always is perfect, but the drive is definitely applied through the inner wheel on curves. And that this may not be as bad as it appears is suggested in the fact that ordinary running is straight ahead, while curves, when encountered, are in one direction as often as they are in the other. In making one complete turn, no matter of what size, the circumference of the circle traversed by the outer wheel always is greater than the circle

traversed by the inner wheel by an amount equal to double the tread, multiplied by 3.1416. This, in the case of a 56-inch tread, is about thirty feet further for the outer wheel to travel. In the case of a car without differential or any equivalent, this means (if the slip be divided equally) that each rear wheel (if thirty-six inches in diameter) must slip one and one-half revolutions in making a complete circle, three-eighths of a revolution in making the more usual quarter turn, and so on. A further advantage of the ratchet is that it permits use of an undivided rear axle or countershaft. The elimination of all differentiating means gives, of course, a still more substantial rotating construction, which is in a degree retained if a clutch in each hub is used, sufficiently tight to drive ordinarily, yet sufficiently loose to slip before the resistance rises high enough to abrade the tire seriously.

UNIVERSAL JOINTS

Editor THE AUTOMOBILE:

[1,930]—I desire to call your attention to an error which you made in your answer, printed in "The Automobile" of June 17, to letter No. 1915, on the subject of the varying angular velocity in the Universal Joint, in which you misquote from an article by me on this subject, to the effect that changing the relative angular positon of a pair of universal joints 90 degrees does not affect the angular velocity ratio of the driving and driven members.

That part of the original text which relates to this phase of the subject reads as follows: "The conditions, however, which must be met in order to give this result (i. e. a constant angular velocity ratio between driving and driven shafts) are: that the fork axes of the intermediate shaft B, must lie in the same plane, and that the angle between both extreme shafts and the intermediate shaft shall be the same."

In your answer to your correspondent you have entirely disregarded the first condition, namely, that the axes of the forks on the intermediate shaft must lie in the same plane, which is really the most important condition, since a misplacement of these parts to an amount of 90 degrees would not only destroy the equalizing effect of the two joints, but would add the variation of one joint to that of the other, making the total angular variation twice that due to a single joint.

It is to be regretted that some constructions permit of this error in assembling, and although it is doubtful if the effect would be apparent in an actual surging of the car, it would probably develop pounding or rattle in the propeller shaft and increase the rate of wear in these parts.

Bridgeport, Conn. H. VANDERBEEK.

It is to be regretted that an engineer, accustomed to be thorough in everything, is not so in his reading. So, it is that the above criticism is not only ill-founded but actually incorrect, for the letter stated just what Mr. Vanderbeek says it did not state. More than this, the figures given therewith showed just exactly the point, so that, even if the statement had been omitted, the inference would have been the same. But the statement as to the plane of the axes was actually made, as anyone may find by re-reading the letter in question. The first four lines below the second cut, in part, read as follows: "The point not brought out above but assumed is that the three shafts are in the *same vertical plane*. If this is not true, *none* of the above *holds good*."

If our correspondent meant that the vertical axis of his slip joint was turned into a horizontal plane, while the universal joint axis was left in the vertical plane, it is true that, as Mr. Vanderbeek has brought out in his letter, the variations of the two joints will not only not equalize, but will be added, thus doubling the effect, and producing the surging to which our correspondent refers. It was not our understanding that this was meant.

MORE UNIVERSAL JOINTS

Editor THE AUTOMOBILE:

[1,931]—Referring to letter 1915 in the June 17 issue of "The Automobile," are you quite correct in your reply?

If B. S. H.'s car has two universal joints and if they are properly set, would not one of them correct the errors of the other, while, if, as he says, in reassembling he gave the slip joint a quarter turn, then if the slip joint is between the two universals, would not the second universal simply double the errors of the first and give him the surging effect he speaks of? I think so.

Should not the two joints be like this—as shown in your diagram and not like this—which would be the position were one of them given a quarter turn relative to the other? SIX CYLINDER SAL.

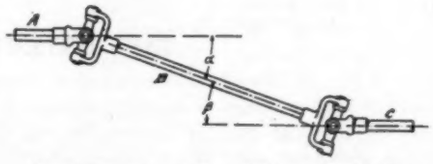
Brooklyn, N. Y.

The figures sent in with this letter were so poor that they could not be reproduced, and the idea intended was not clear, so the original diagram is reproduced with a top view to aid in making it clear. These two figures are intended to bring out the idea of the axes-in-one-plane, which seems to have been misunderstood.

As to the letter above, it appears as if the writer has also misunderstood the original letter of B. S. H. As we have read it and re-read it, there is nothing in it



Top View of Universal Joint



Arrangement of Two Universal Joints

about two universals and a slip joint, or three in all. The writer spoke of but two joints, one of which acted as a slip joint, in addition to being a full universal.

In both of the questions asked, however, the writer has the right idea. The placing of one joint with the plane of its axis at 90 degrees to the plane of the axis of the other joint would result in doubling the errors and giving the noticed surging effect. As to Sal's diagrams, we think they were right, but, as remarked before, they were so poor that it was hard to be sure of the exact idea. The part in which "she" says that the two joints should be as shown in our diagram, reproduced on this page, is certainly correct.

ACTUAL HORSEPOWER

Editor THE AUTOMOBILE:

[1,932]—Will you please publish in "Letters Interesting and Instructive" how the actual horsepower of a motor car engine can be determined when you have given the bore, stroke and number of revolutions per minute. F. M. D.

Anderson, Ind.

There is but one way in which the actual horsepower of an engine can be determined, and that is by testing it. In this test it will be necessary to measure the pull of the motor in pounds at a measured radius of brake arm. This brake arm measured in feet, when multiplied by 2π, will give the circumference of an imaginary circle in which the motor is exerting the force measured. This force is exerted each revolution, so to reduce it to force per minute you must multiply by the number of revolutions per minute. Feet circumference times pounds exerted per minute will give foot pounds per minute. As one horsepower is defined as the power which will do work equal to 33,000 foot pounds per minute, the above result must be divided by 33,000. This will give the horsepower of the engine at the speed measured.

To test your engine accurately, the best way is to measure the power successively from the lowest to the highest speed possible, in intervals of say 100 revolutions. That is, measure the power output at 300, 400, 500, and so on up to 1,500 or whatever is the maximum speed of your engine. Taking these results, the power curve of the engine may be plotted, and from it, the power, at any speed read off.

As this process of measuring power is rather a lengthy one for the amateur owner, and somewhat expensive as well, it is advisable to have it done at some place where testing facilities are available. Thus, nearly all universities and most colleges are in a position to do this testing for you more readily than you could do it yourself. In your particular case, the distance to Lafayette, Ind., is not great, and at Purdue University you can have your engine tested.

ON WIRE WHEELS

Editor THE AUTOMOBILE:

[1,933]—We have read with much satisfaction your editorial note in issue of June 17 on the interesting subject of wire wheels. It is really hard to explain why the public will take such slight heed when approached on the subject of wire wheel equipment. We have regularly listed one of our models this season with wire wheels, and as any opportunity presents itself we try to explain their advantages—but to scarcely any purpose, as with but eight or ten exceptions our purchasers of this model have all insisted on artillery wheel equipment. Not only is the wire wheel stronger under all conditions, and a tire saver because of its resiliency, but it adds fully 25 per cent. to the riding qualities of the car. The writer recently made a trip of 220 miles in one of our "Featherweight Flyer" models, equipped with wire wheels, and a few days later went over practically the same ground with one of these models equipped with artillery wheels, and the difference in the riding of the two cars was simply astonishing. The wire wheel is considerably more expensive to build, but if the public would only accept them we would so equip every car turned out, as the saving to the user on tires and on all parts of the mechanism of the car equipped with wire wheels would be hard to estimate fully.

The writer calls to mind an occurrence in the early days of the industry which demonstrated the effect on tires most conclusively. (I may be wrong as to absolute dates and figures, but the substance is correct.) About 1902 the Oldsmobile Company, in response to public demand, changed over from wire to artillery wheels on their small curved dash runabouts. As I remember, they were using a 28x2 1-2 single tube tire. These tires gave good satisfaction on the wire wheels, but when placed on artillery wheels I know of cases where they absolutely went to pieces in six or eight weeks' time, and the company was obliged to increase the tire size in order to give any kind of satisfactory service. We are using every endeavor to induce our customers to specify them, and firmly believe that they will again come into general use within the next two years.

CAMERON CAR COMPANY.

Beverly, Mass. H. W. DOHERTY.

Where Taft will Summer

By W. H. Doherty.



At Beverly Mass.

BEVERLY, MASS., June 28—The summer home of President Taft is located eighteen miles east of Boston on the famous "North Shore" of Massachusetts, in Beverly, which is one of the most beautiful of the smaller New England cities. Mr. Taft, who enjoys keenly automobiling, could not have picked out a more propitious location. The "North Shore Drive," extending easterly from Beverly through Manchester-by-the-Sea, Magnolia, and old Gloucester to Cape Ann; and in the other direction through Salem, Swampscott, and Lynn, where it joins Boston's wonderful park system, is almost beyond description. Miles of its course are bordered with grand old woodland and other miles follow closely the shore of Massachusetts bay. This great highway is the nucleus of scores of others which extend inland for miles and miles, all of finest macadam, over a wonderful rolling country, dotted with beautiful lakes, through quaint villages replete with Revolutionary history; everywhere an atmosphere of calm tranquil existence, where a car glides along, twisting, turning, up and down, over hill and dale with seldom more than a half mile straightaway. Those who have never toured in Eastern New England have something in store for them that they could well afford to drive clear across the continent to find out about.

The President can leave his home in Beverly and drive to the White Mountains over roads which would make even a Frenchman gaze in open-eyed amazement; or he can skirt the shore from Salisbury Beach, across the southeastern corner of New Hampshire, and go on into Maine within a stone's throw of the Atlantic for almost the entire distance. The diversity of scenery to be found everywhere within a radius of 100 to 150 miles in all directions from Beverly cannot be equaled in the United States, combined with such perfect conditions for automobiling. The Massachusetts Highway Commission protects the user of the roads, for on all of the principal highways signs appear at sharp corners or intersections of important roads, and also many other notices of a similar character to acquaint the autoist with what kind of a road is ahead of him.

What a country this would be if these conditions existed in every State! May we hope that Mr. Taft, who has been in every State in the Union and almost every country on earth, will be so impressed with the highways of Massachusetts, and the general development which good roads carry with them, that he will lend noticeable assistance to the efforts which are being put forth all over the country to improve the conditions of the highways! Perhaps we can look forward to some great national highways in the near future. Surely we can if our President can become sufficiently interested, and his sojourn in this section for the four Summers of his term should keep this subject in his mind with a little energy put forth directly to him by those who are actively associated with the movement for national highways.



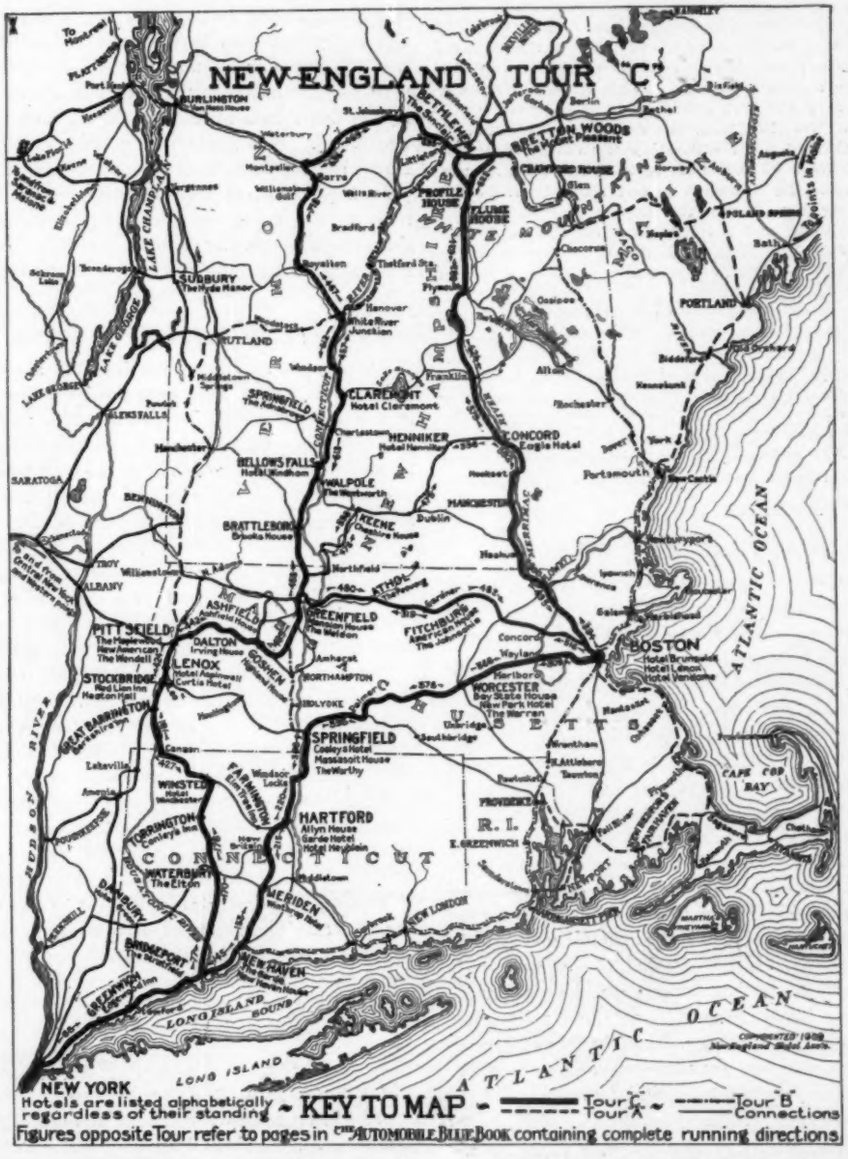
Shore Road.

TAFT ENTERTAINS ATLANTA PATHFINDERS

WASHINGTON, June 25—The White steamer and Oldsmobile cars, representing the New York *Herald* and the Atlanta *Journal*, which are blazing a route for the proposed endurance contest from New York to Atlanta next Fall, arrived in Washington on Wednesday and met with a most cordial reception. Several cars went down into Virginia to meet and escort them into the national capital. Afterwards the scouting parties were taken to the White House, where they were received by President Taft, who was most cordial in his greetings. He commended their project and wished them good luck. After that they were tendered a luncheon by the Washington Automobile Club.

VARIED PANORAMAS IN NEW ENGLAND TOURS

MOUNTAINS, lakes, rivers and a touch of the sea in New England combine to give tourists a diversity of scenery not possible in any other part of America, in a locality where nature has lavished her choicest gifts, all within a figurative "stone's throw" of each other. Such is the characterization given by the New England Hotel Association to the route chosen as "C" of its series of trips through the wonderful land of the Berkshires, White Mountains, Connecticut and Merrimac River valleys. Roads whose construction has been adopted as a model in other parts of this great nation have been selected over which to send the automobilists in search of the beauties of the region, while at the same time keeping them in touch with splendidly equipped hostelries. Such an arrangement has been conducive to extended traveling in automobiles, large and small, until the New England States are probably more toured than any others in the country, and the leaflets issued by the hotel men, assisted by the "Official A.A.A. Automobile Blue Book" have been warmly welcomed by all who have come into touch with them. There are so many possible directions which might be taken in outlining a vacation that frequently the mass of data confuses those who attempt to plan their travels aforetime, and to obviate this possibility the three tours, which embody the most popular features of the section, have been compiled. These show routes which can be taken with the knowledge that the fascinating scenery on one cannot be surpassed upon any of the others and perhaps not in the States north of Long Island Sound.



Tour "A," as described in THE AUTOMOBILE of May 6, consists of a trip of about 1,000 miles through the western portions of Connecticut, Massachusetts and Vermont, then crossing through New Hampshire and Maine to the coast at Portland, following the sea from that city through Boston to Cape Cod and finally westward along the shores of the sound for the run into New York. Tour "B" was explained in THE AUTOMOBILE of May 20, giving a story of a route of about 790 miles in which the Connecticut Valley is followed from Hartford directly north to the mountains, then taking the tourist to the coast at Portsmouth, down to Boston, cutting across to Providence and Narragansett Pier and to the metropolis. All three start from New York City, as the general gateway for parties from other parts of the East and South, and the beginning of a great many tours by New York people. They are so laid out that they can be taken in either direction and between all important cities on these maps are figures which indicate pages in the "Blue Book" where the detailed running directions may be found. The arrangement is further perfected by having the main routes touch each other at various points, sometimes even using the same roads for distances, and this is a feature appreciated by those who know the pleasure of meeting fellow tourists en route.

Tour "C" is planned for those who desire a trip of about 830 miles, including a run through the Berkshire Hills, then up the Connecticut Valley, through the White Mountains, down the shortest, but none the less fascinating, route to Boston, and by the most direct roads to the finish. Great Barrington, Stockbridge, Lenox, and Pittsfield are names of cities so closely allied to the wonderlands of western Massachusetts that the mention of them suffices to picture the delight of a trip through that part of the State. The broad Connecticut is touched at Greenfield, and its famous agrarian vistas surround the tourist as far as White River Junction, when the route makes a detour to Montpelier. After visiting the capital the tour continues to St. Johnsbury and into the mountains. From Bretton Woods Tour "C" travels to Boston, passing the Profile House, the Old Man of the Mountain, through the Franconia Notch and the Flume, Plymouth and Concord. For a long distance the road winds along the Pemigewasset river and fascinating views. At Plymouth a side trip may be made to Lakes Winnipisaukee and Winnesquam, joining the main route again at Franklin, and running along the Merrimac river. The route to New York via Worcester, Springfield, Hartford, and New Haven is well known.

LATE INFORMATION FOR THOSE WHO TOUR

CORRECTION ON ROUTE THROUGH CANADA

There are probably many automobilists who are planning tours for this summer through Canada, and the following letter received from H. E. Newcomet, engineer of maintenance of way of the Pennsylvania Lines West of Pittsburg, bears special interest. Mr. Newcomet says:

"In reading over your 1909 Official Automobile Blue Book, section 1, I noticed on page 681 that you state that during navigation boats connect Ottawa with Montreal and many tourists ship their automobiles that way. I made this trip last summer and I would strongly advise any one in making this trip not to use the Ottawa river boats, as it is necessary to transfer from Grenville to Carillon overland, as the boats do not run through. This transfer is made on a railroad which is very old and primitive and cannot handle automobiles for transfer. Furthermore, the design of the concrete docks at Grenville is such that after unloading the car it is necessary either to build some form of turntable to turn the car and run it up a ramp, as the unloading platform is not more than 15 x 20 feet and you unload at right angles to the ramp. It took us four hours to take a small runabout and a touring car off the boats and get them onto the highway. The distance is about 14 miles and the road so poor that a transfer could not be made in time to catch the boat.

"If the weather in this territory has been good there is no reason why a trip on the north shore of the Ottawa river cannot easily be made in good time, and it is quite an interesting trip, mostly through the French country. If the weather is at all wet, however, or has been wet, I would strongly advise running from Ottawa to Prescott and putting the car on the St. Lawrence River boats for Montreal. The road between Prescott and Ottawa can generally be depended upon, although it is not in any manner a first-class road. We made the trip from Prescott to Ottawa, and Ottawa to Montreal."

NEW PARIS QUARTERS FOR PIERCE

PARIS, June 23—American owners of Pierce cars touring Europe have now at their disposition handsome central offices in the Avenue de la Grande Armee, Paris, where spare parts and all information concerning routes, touring regulations, etc., can be obtained at any time. The Pierce Motor Car Company's Paris touring office has been in operation for more than a year, but up to the present has shared office room with a French firm. Owing to the increased number of owners of Pierce cars touring Europe it has been decided to move into larger and self contained offices, and the change took place this week, Manager N. F. Goodsill opening handsome showrooms at the corner of the Avenue de la Grande Armee and the Avenue de la Forge. This is the first time that an American firm has been directly represented on the Paris Automobile Row, and the Pierce company have obtained showrooms in keeping with the importance of the firm. N. F. Goodsill declares that present indications point to a larger number of Pierce tourists than on any previous year, the number up to the present having reported at the Paris offices being about fifty, although the touring season has hardly commenced. Most of the tourists this year are travelling on either the large six or the most powerful four-cylinder model.

CLEVELANDERS PLAN JULY 4 TOUR

CLEVELAND, June 28—One of the most enjoyable runs of the past few years will be taken by Cleveland Automobile Club members, July 3-4-5, when a three days' trip will be made to Jamestown, N. Y., to spend the Fourth of July. It is expected that at least thirty machines will make the trip. The party will leave Cleveland Saturday morning, July 3. Lunch will be served at the Hotel Cleveland in Conneaut, O., and the cars will reach the Peacock, Mayville, N. Y., for a stop over night. On July 4 the party will proceed around Lake Chautauqua to Jamestown, and it is probable that the night will be spent either in Cambridge Springs or Saegertown. Monday the stop will be at Conneaut Lake, and the cars will return to this city in the afternoon.

FERRY ON SOUND SHORTENS AUTO RUNS

NEW YORK, June 28—Automobilists who have hitherto lamented the inaccessibility of Long Island to Westchester county, and vice versa, now have a route which saves many a long run through this city. A frequent ferry service has been established between Oakland Beach, at Rye, and Seacliff in Hempstead harbor, by the Oakland Steamboat Company, which has chartered the large ferryboat Englewood of the Fort Lee line for the season, and it has begun its trips, leaving Rye every even hour, and Seacliff every odd hour between 9 a. m. and 8 p. m. The Englewood will accommodate 25 automobiles at a time without crowding and makes the run across the sound in about 40 minutes. Its pier at Rye is but a half mile down Rye Beach avenue from the Boston Post road. This method of getting from New England points to Long Island, for either the north or south shore, has already proven popular; as well as have certain routes around the city, such as by going up the Hudson to Tarrytown, then across through Westchester county to Rye, crossing the Sound and returning on Long Island. The roads are all fine.

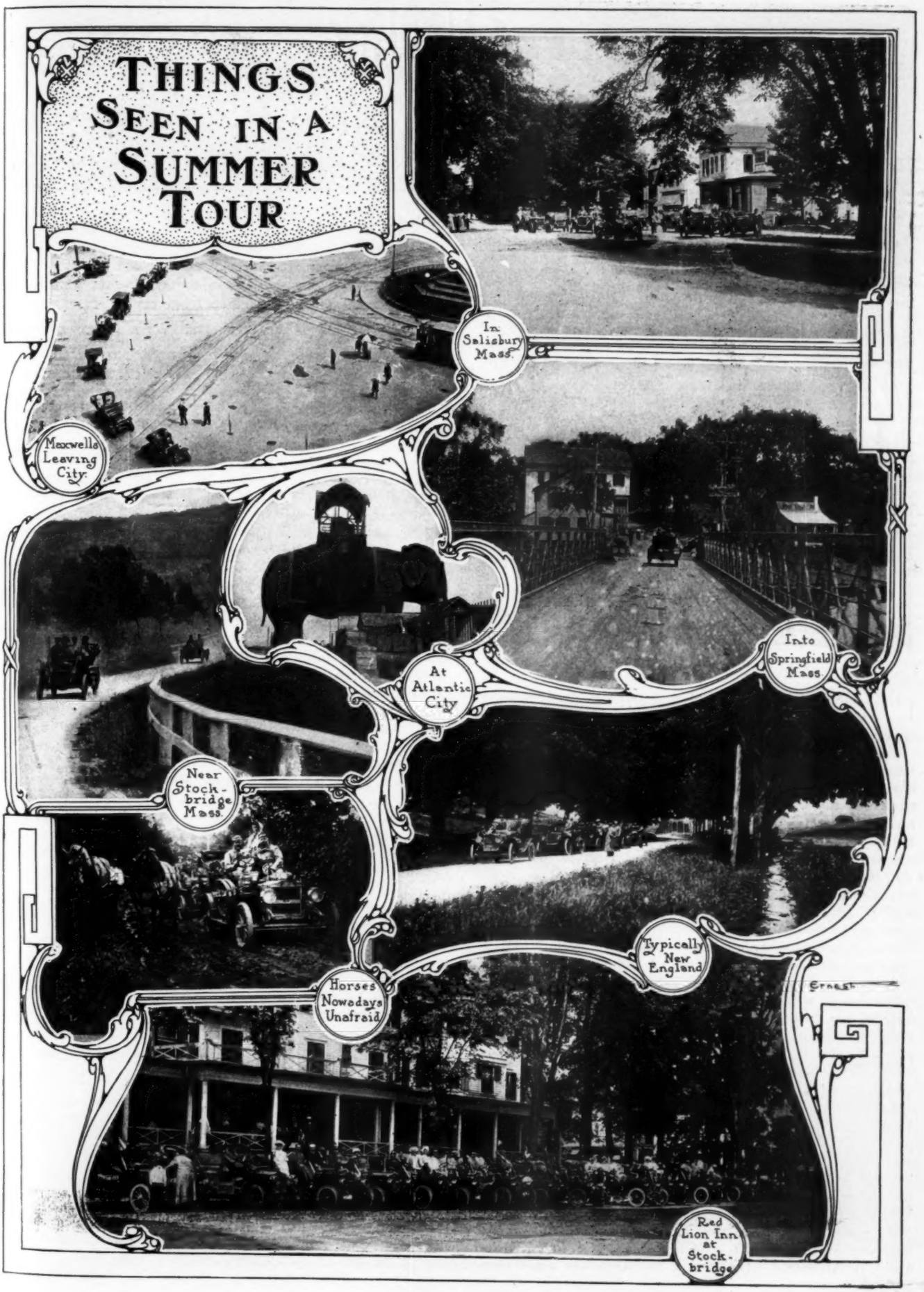
FRENCH COMMISSION TO MAKE NEW ROAD LAWS

PARIS, June 23—The growth of the automobile has made necessary a new set of laws governing the use of the highway. This is felt more strongly in France than elsewhere, for, having inherited a magnificent set of highways touring has here grown to an extent unknown in less favored lands. Minister of Public Works Barthoux frankly recognizes that laws drawn up one hundred years ago, when the mail coach was the fastest thing on wheels, and when intercommunication was slight, are altogether inefficient in these days of rapid and frequent travel. "For the new conditions we need new regulations," he declares in an official publication, and to obtain these new regulations he has dedcided on the formation of a temporary commission of experts.

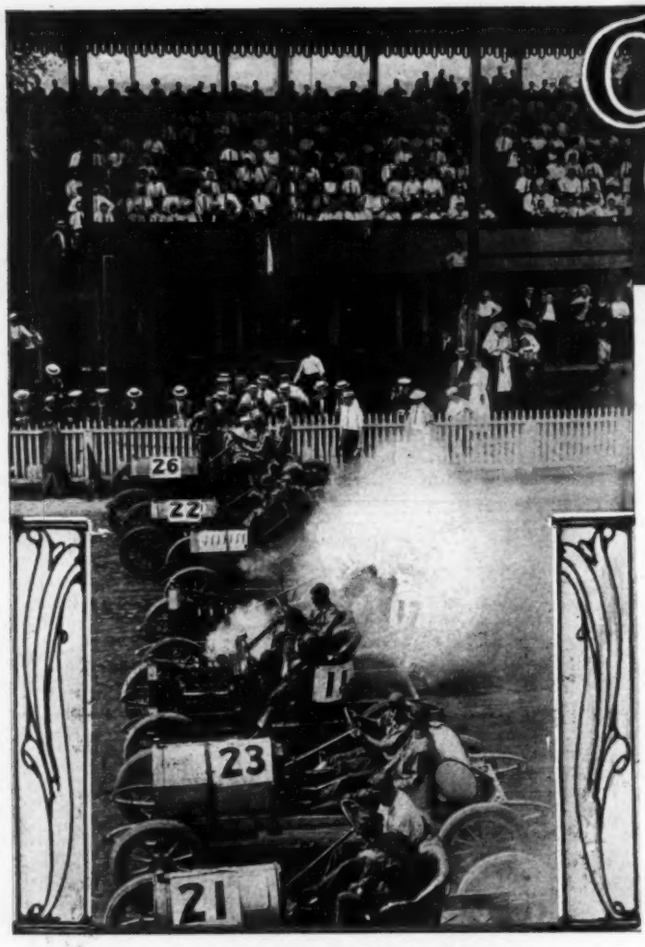
The first meeting of the road laws commission took place in Paris this week at the offices of the Minister of Public Works, under the presidency of M. Leuthier, the general inspector of the department of roads and bridges. The commission comprises high officials in the Government roads department, the chief secretary of the Minister of Justice, Messrs. Max Vincent and Chaix as representatives of the Automobile Club of France; Senator Humbert of the U. V. F., represents cycling interests; while the technical press has as its spokesmen Baudry de Saunier, of *Omnia,* Henry Desgrange, of *L'Auto,* and Georges Prade of *Les Sports.* The recommendation of this special commission will serve as the basis for the elaboration of a modern set of laws and regulations governing traffic on the main highways and busy city streets.

MONTREAL AUTOISTS WORK FOR GOOD ROADS

MONTREAL, June 28—The directors of the Automobile Club of Canada have gone over the main highway to Rouse's Point, via Chambly, St. John's and Lacolle, and guide boards will be erected without delay. This should not only prove of great service to all kinds of vehicles traversing this mportant and picturesque route, but also should be an inducement to tourists across the border to visit this section of the country. Several pieces of road are in very bad state of repair at present, but it is the purpose of the club to petition the Government, asking that the roads be put in proper order. A map of the above route with detailed information will be ready for distribution shortly. The Automobile Club of Canada is doing excellent work in connection with the good roads movement in and around Montreal, and a large number of stretches of roadways have been repaired and coated with a composition of oil and coal tar at the expense of the club. Although somewhat of an experiment, this has proven successful.


THINGS SEEN IN A SUMMER TOUR
In Salisbury Mass.
Maxwells Leaving City
At Atlantic City
Into Springfield Mass
Near Stock-bridge Mass.
Typically New England
Horses Nowadays Unafraid
Red Lion Inn at Stock-bridge
Ernest

Chalmers Scores in Quakertown's Hundred



Start of the 100-Mile Special Race

PHILADELPHIA, June 28—The recrudescence of automobile track racing in this city, last Saturday afternoon, when the Quaker City Motor Club held its third annual spring meet, at the Point Breeze track, had as its star feature a contest of 100 times around the mile track, in which Harry Lorimer, in a 40-horsepower Chalmers-Detroit Bluebird was an easy winner. In this, as in the other events scheduled, the fields were extremely ordinary and poorly entered, so that Lorimer and Ralph De Palma had matters their own way and about evenly divided the plunder. The work of the little S. P. O., driven by Laurent, and that of the Stearns, driven by Amateur Harry Goodin, helped materially as runners-up, with the Mitchell, Autocar and new Bergdoll as the other makes represented on the course. The one-afternoon program with the 100 and 50 mile races leading figures, had been arranged hurriedly when it was decided to postpone the 24-hour contest first proposed. Lack of interest and entries made the substitution necessary.

There were eight starters in the 100-mile race—the Chalmers-Detroit, two Autocars, a Stearns, the S. P. O., a Buick and two Bergdolls. Lorimer, in the Bluebird, took the lead at the start and was never headed, in fact, making the entire circuit without stopping, and at the finish he was about 11 miles ahead of the second car. The Stearns and the S. P. O. were the important competitors, though for a time the stripped Buick, driven by Jimmy Ryall, figured until it broke a bolt in its crankcase and had to pull out. The Stearns had carbureter trouble, and could not seem to get enough gasoline, and the S. P. O. broke its steering knuckle on the eighty-second mile, when it was in second position. The new Bergdoll cars averaged about 30 miles an hour. With the Chalmers having a good hold on first, the second and third places went to the two Autocars, which had been running very consistently at a good fast pace, driven by Joe Brown and J. A. Archfield. They were so far behind the winner, however, that their times were not taken. Lorimer's 2:02:06 4-5 gave an average speed of about 44 miles per hour. That the going was not faster came through the fact that the winner did not have to push his car, and because the track had been badly cut up by previous short-distance events.

Some Features of the Meet That Were Noteworthy

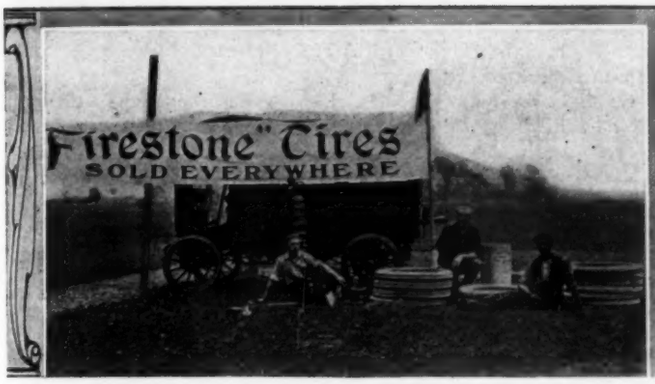
Some spirited racing took place in the 50-mile race between De Palma in a Fiat, Lorimer in the Chalmers-Detroit, and Laurent in the S. P. O. There were eleven starters, and the Fiat and the Chalmers-Detroit jumped away from the others at the gun, the latter hanging on to the foreigner like a leech. For 25 miles the proverbial 5-A could have covered the pair, especially when Lorimer was attempting to pass. In these numerous attempts De Palma always stalled him off, and just at the conclusion of the twenty-sixth mile, when Lorimer took a short cut to the inside in an effort to secure the lead, his right tire went a-flying across the track. De Palma had garnered a 2½-mile lead when the Chalmers-Detroit left the infield in pursuit. Two laps later the same tire went bad, and De Palma added another mile and a half to his lead before Lorimer could get going again. Meanwhile Laurent, in the S. P. O., had closed the gap and was in second place with a lead of about a mile on the Chalmers-Detroit. Interest then centered in the race for second honors, and although Lorimer took all sorts of risks he could not quite overcome the advantage gained by Laurent during his lay-off, the latter capturing the place by about 200 yards. De Palma's time was 57:43, and he had a lead of 3½ miles over the S. P. O. at the finish. He also registered the fastest five and ten mile times of the day—5:48 1-5 and 11:26 3-5, respectively.

De Palma later added to his worldly pelf when, in an attempt on the mile track record of 1:02 4-5, held by the Peerless *Green Dragon*, Barney Oldfield up, he clipped off an even second with the *Cyclone*, and incidentally captured a cool hundred with the record. He broke into the limelight on his first appearance by capturing the 10-mile event for stock chassis selling for $3,001 and over, covering the distance in 11:46 1-5, holding his nearest competitor safe. Lorimer, in the previous event, $2,001 to $3,000 chassis class, covered the same distance in 11:34 1-5.

In the preliminaries, Cherie Borie, in a Mitchell "20," beat H. H. Crowell in a 5-mile race for equipped cars, $1,250 and less, in 8:16-4-5. In a race of the same distance for equipped cars catalogued at from $1,251 to $2,000, J. B. Ryall, in a Buick "30," pulled away from Archfield's 25.6-horsepower Autocar, and Lorimer's Chalmers-Detroit "30," in 6:44 1-5, winning by nearly half a mile.

Meet Well Conducted and Attendance Fairly Good

The attendance of upward of 5,000 spectators demonstrated that this branch of sport, properly conducted, still has a strong attraction, and despite the intense heat, and not first-class racing, the people many times were brought to their feet in roaring acclaim of some particularly pretty bit of driving. It was the general opinion that there was a great deal of credit due to the officials of the club for the manner in which the meet was conducted, witness the fact that it was just 1:30 p. m. when the first event was started, as had been advertised. The crowds and newspaper men, however, were a trifle sore over the unwillingness or inability of the clockers—the New York Timing Club—





to hand out the intermediate times in the long-distance races. It has been the custom here to announce the time at each five miles. It is a good scheme, too, as it tends to keep the crowds busy with their pencils and adds to the interest. With no intermediate announcements, the 50 and 100 mile events became rather dismal, especially as the winners in both instances finished miles ahead. When, finally, the 5-mile times were handed privately to the pressmen in the judges' stand, they were so suspiciously "flat" as to raise a doubt as to their accuracy, many of them being on the even minute. Following is the summary:

100-MILE SPECIAL, CASH PRIZE $200

No.	Car	H.P.	Driver	Time
1	Chalmers-Detroit	40	Harry Lorimer	2:02:06 4-5
2	Autocar	25.6	J. F. Brown	
3	Autocar	25.6	J. A. Archfield	

50 MILES, CHASSIS, FREE-FOR-ALL

1	Fiat	60	R. DePalma	:57:43
2	S. P. O.	18-24	Laurent	1:01:05 3-5
3	Chalmers-Detroit	40	Harry Lorimer	1:01:09 4-5

10 MILES, CHASSIS, $3,001 AND OVER

1	Fiat	60	R. DePalma	11:46 1-5
2	Stearns	30	Harry Goodin	12:23 4-5
3	American	50-60	Harry Willis	12:27 3-5

10 MILES, CHASSIS, $2,001 TO $3,000

1	Chalmers-Detroit	40	Harry Lorimer	11:34 1-5
2	S. P. O.	18-24	Laurent	13:10

5 MILES, EQUIPPED, $1,251 TO $2,000

1	Buick	30	J. B. Ryall	6:44 1-5
2	Autocar	25.6	J. A. Archfield	7:22 2-5
3	Chalmers-Detroit	30	Harry Lorimer	7:23 3-5

5 MILES, EQUIPPED, $1,250 AND LESS

1	Mitchell	20	Cherie Borie	8:16 4-5
2	Mitchell	20	H. H. Crowell	8:45 3-5

1 MILE TIME TRIAL, TO BEAT TRACK RECORD (1:02 4-5) CASH PRIZE $100

1	Fiat Cyclone	60	R. DePalma	1:01 4-5

CLIMBED SUNSET HILL IN WESTCHESTER

OSSINING, N. Y., June 28—The Upper Westchester Automobile Club had its first climb, Saturday, on Sunset Hill, near here, with a good field and some fast time in the six classes. Over a course seven-tenths of a mile long, with a grade varying from 6 to 12 per cent., an Atlas, driven by E. H. Sherwood, carried off the real honors for making the fastest time in the stripped stock chassis event. Atlas, Renault, Stoddard-Dayton, Chalmers-Detroit "30" and Maxwell won in their respective classes, while the free-for-all was taken by a steam car. There was one sharp turn in the hill, and it caused considerable skidding. The winner in each class received a silver cup. Summary:

STRIPPED STOCK CARS

Pos.	Car	Driver	Time
1	Atlas	E. H. Sherwood	1:02 3-5
2	Maxwell	William Sickinger	1:06 2-5
3	Renault	E. H. Ennis	1:15 4-5
4	Ford	T. E. Wilson	1:18

CARS COSTING $3,000 AND OVER

1	Renault	E. H. Ennis	1:06 4-5
2	Howard	Burrows McNeir	1:23 4-5

CARS COSTING $2,000 TO AND INCLUDING $3,000

1	Stoddard-Dayton	F. Crowther	1:14 3-5
2	Chalmers "40"	A. L. Washburne	1:23 1-5
3	Atlas	E. H. Sherwood	1:42

CARS COSTING $999 TO AND INCLUDING $1,500

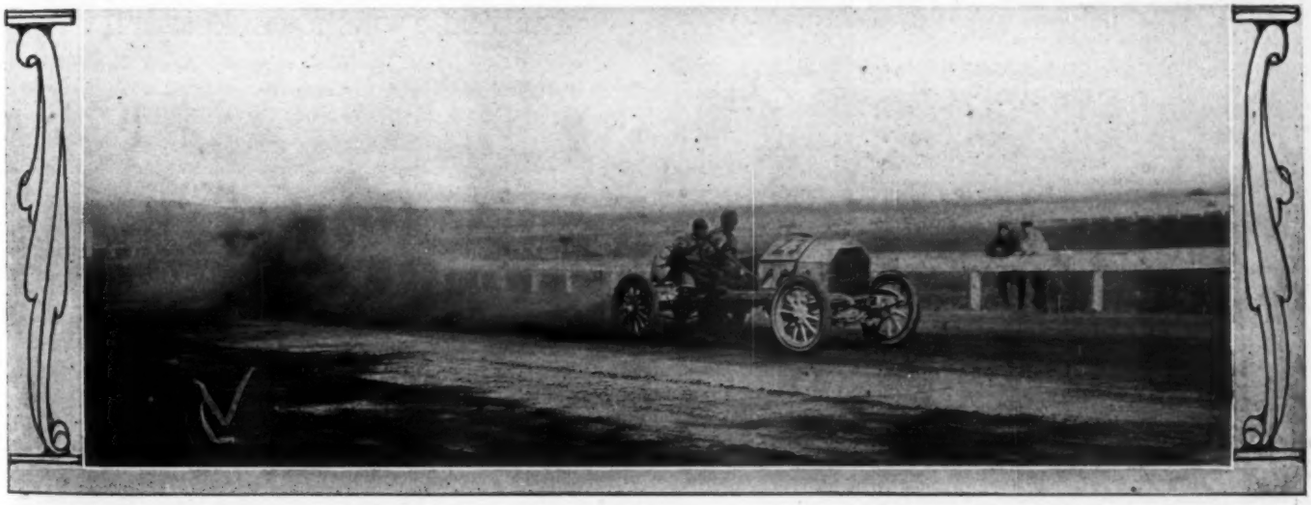
1	Chalmers "30"	A. L. Washburne	1:21 3-5
2	E-M-F	W. S. Smith	1:29
3	E-M-F	Almery and Paul	1:30
4	Buick	Walter Horton	1:32 2-5

CARS COSTING $999 AND UNDER

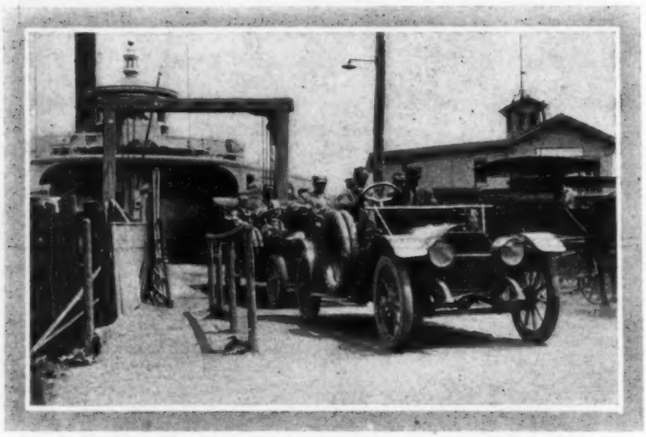
1	Maxwell	William Sickinger	1:12 4-5
2	Maxwell	Arthur Lee	1:24 1-2
3	Ford	F. E. Foshay	1:34 2-5

FREE-FOR-ALL

1	Stanley Steamer	Harvey W. Bell	:58
2	Atlas	E. H. Sherwood	1:02 3-5
3	Peerless	Ray Gilhooley	1:13
4	Howard	Burrows McNeir	1:19 1-5



Winning Chalmers with Lorimer at the Wheel, Rounding the Turns at Point Breeze in the 100-Mile Special Race



Cars Taking Ferry at Nyack En Route to Newburg

BINGHAMTON'S RUN EMPHASIZES "SIXES"

BINGHAMTON, N. Y., June 26—Four, and perhaps five, perfect scores are the result of the fourth annual endurance contest of the Binghamton Automobile Club, which finished a trip of about eight hundred miles this evening. Two new six-cylinder Mathesons, a six-cylinder Thomas and a four-cylinder Cadillac have clean titles, and it is likely that a six-cylinder Pierce-Arrow which dropped the lid of a battery box may also be put among those in the deadlock for premier honors. For five days of the past week these automobiles, four other contestants, and one official car have been driven over the roads of four States, visiting the capital of each, and spending one day of rest in the "Hub." Rules had been framed which gave the event the interest of a competition without drudgery.

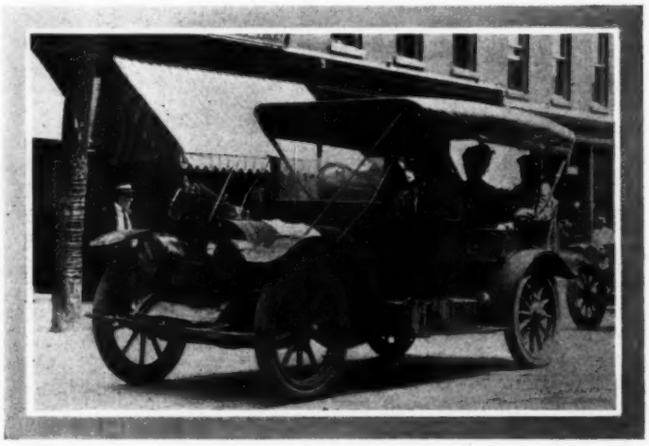
Monday morning last the caravan, consisting of ten autos, left Binghamton for Albany, a distance of 142 miles, with an intermediate stop for luncheon at Worcester, N. Y.; Tuesday they journeyed to Boston, 187 miles, with the noon control at Springfield; Wednesday was taken for sightseeing, under the guidance of a regular "Seeing Boston speiler," who informed the autoists that Boston streets are paved every 50 years, and that they are now in their forty-ninth. Answering the call of the road on Thursday, the route to Hartford was taken, a run of 116 miles, a midday stop being made at Providence; Friday led to Newburg, through Tarrytown, 144 miles, and the home stretch was 169 miles long, from Newburg to this city, lunching in Delhi.

George F. Johnson, the donor of the trophy, led the way as pilot in his six-cylinder Stevens-Duryea, and he kept right ahead through the tour, except once, when another car took a short cut. The others in the party were:

William G. Faatz, Thomas; C. Fred Johnson, Matheson; Charles F. Sisson, Jr., Pierce-Arrow; G. Somers White, Matheson; Harry T. Conant, Packard; Dr. Jeremiah McDonald, Cadillac; R. E. Mix, Thomas; G. Tracy Rogers, Locomobile, and Hiram Goldsmith.

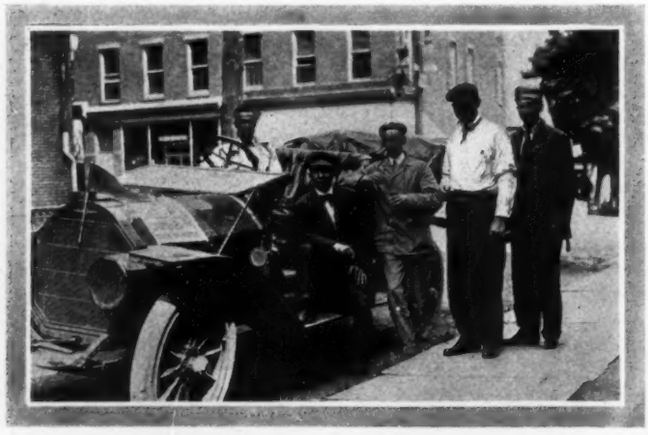
Of these the Faatz Thomas, the two Mathesons, and McDonald's Cadillac made the entire run on time, never having to stop for mechanical and other trouble, except tires once in a while, and their records were clean in every way. On the last day the battery box lid of the Pierce fell off, necessitating a stop to go back for it, and the observer's record of an adjustment. The Packard was penalized for an adjustment to a small forging which gave way, and the Locomobile withdrew because tire trouble had made it very late on the first day and had increased penalties on the second. Because he refused to change observers, as required by the rules, the Mix Thomas was dropped from the contest, but completed the run as a non-contestant. The Goldsmith party refused to run faster than fifteen miles per hour and averaged lateness by the hour on each day, reaching the finish about five hours behind.

A great deal of credit has been given the cars which made this trip, for there were many places where they were well tested, on muddy or rough roads, in climbing mountains, or in making detours around road-building operations. The Matheson Sixes made their first appearance in road endurance contests and showed up exceptionally well.



George Somers White in Six-Cylinder Matheson

The committee will meet to decide upon some method of breaking the tie, and also as to whether it shall be four or five-cornered. Two proposals have been made, one to have a further test and the other to allow the owners of the perfect machines to vote the trophy to one of their number.



Six-Cylinder Stevens-Duryea Pilot Car

Baldwin at the Wheel, and George F. Johnson, T. W. Whipple and J. M. Kennedy other occupants of the car

FORD NO. 2 WINS RACE TO SEATTLE

SEATTLE, WASH., June 29—Ford runabout No. 2, driven by B. W. Scott and C. J. Smith, has won the ocean-to-ocean run. For 22 days 55 minutes this little car was on the road from New York, and reached this city on last Wednesday, well ahead of any of its competitors. The Shawmut, driven by T. A. Pettingill, Earl Chapin, and Robert Messer, was second, about eight hours later; and the Ford No. 1, piloted by Frank Kulick and H. B. Harper, arrived third, on Friday morning. The Acme, handled by George Salzman, F. R. Sheets, Jerry Price, and J. A. Hemstreet, arrived this afternoon.

Decided uncertainty as to the exact winner has prevailed since the first cars came in. The Shawmut crew protested the leading Ford on three scores—first, for crossing a bridge where the Shawmut was delayed 16 hours, because the latter did not have permission; second, for allowing an outsider to take the wheel in Snoqualamie Pass; and third, for changing a rear axle. Referee Robert Guggenheim investigated the charges and did not sustain them, making known his decision to-day. Therefore the Guggenheim trophy with $2,000 will go to the Ford crew, and $1,500 to the Shawmut.



Summit of Ives' Hill, Near Meriden, Conn., Scene of the Recent Hill Climbing Contest

CORBIN WINS CLIMBING HONORS NEAR HOME

MERIDEN, CONN., June 26—Twice during the afternoon a Corbin piloted by B. C. Rogers excelled its rivals in climbing Ives Hill. Though it captured the free-for-all in .45¾, its best ascent was accomplished in its class event with figures of .45¼. Although open only to local owners, the event was exceptionally well managed, and the half mlie course was guarded by State militia, the guardsmen being from Company I of the Second regiment. That this kind of sport is popular in Connecticut, the third climb within a short while, was shown by the presence of several thousand spectators, some from New Haven, New Britain, Hartford, and other cities. The cars, many of them stripped and tuned, were divided into classes by piston displacement.

For the big car class, those between 301 and 400 cubic inches, a Thomas-Detroit was the victor, driven by Percy Callington, in .47½, and another of the same make took second, Albert Eichorn at the wheel. It was in the section for cars of from 231 to 300 cubic inches that Rogers scored first, and it developed, the fastest of the afternoon, in .45¼, with C. A. Terrell in a Pope-Hartford, the runner-up. Four cylinders won over the two-cylinder variety in an event for autos whose displacement rated between 161 and 230, for a four-cylinder Ford, driven by Adam Englehardt, made the ascent in 1.10½, defeating a double-opposed Reo handled by Arthur E. Cook.

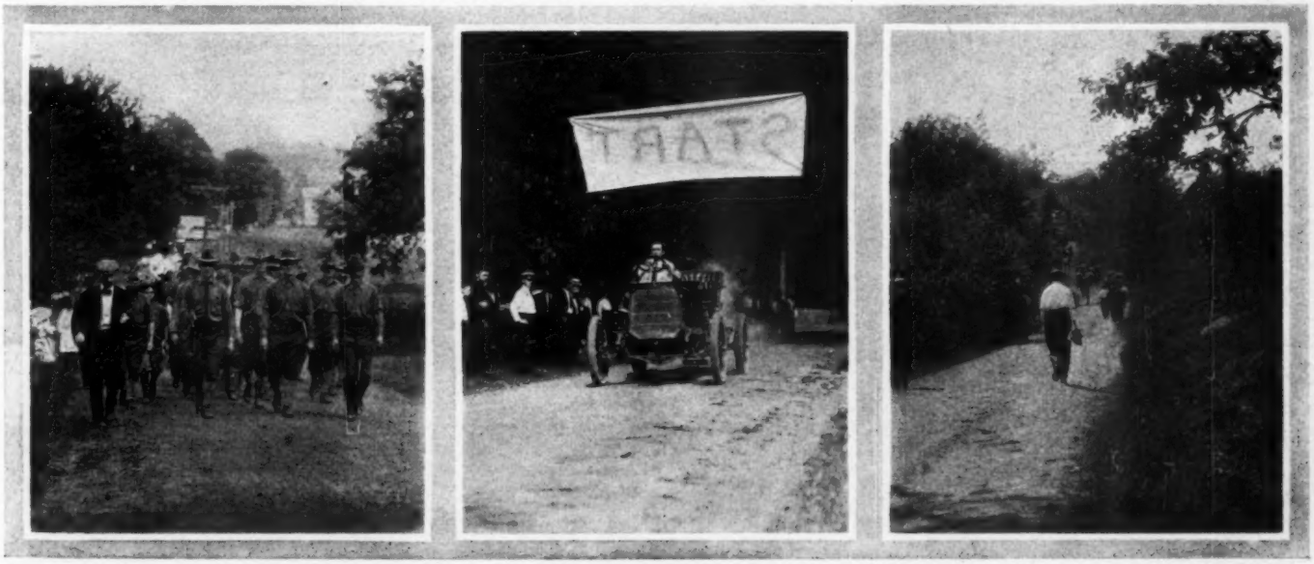
Two Maxwells had the little-car section to themselves, that with less than 160 cubic inches in their motors, and Harry Smart ranked the better in 1:13, his competitor being R. J. Merriam.

As a climax came the free-for-all, which, as usual, furnished a surprise. It was not that of a record-breaking rush, however, for Rogers' Corbin dropped one-half a second somewhere on the route over its best previous time. Thus the record for the open event stands at .45¾, but not the record for the hill. A twin-cylinder Indian, handled by Joseph Allaire, negotiated the distance in .40½, carrying off the palm for the two-wheelers.

So pleased were the officials and the club members that already plans are being formulated for a repetition later in the season. The officials were: Referee, Charles Cuno; starter, B. L. Lawton; judges, J. H. White, E. J. Doolittle, C. B. Rogers, George M. Curtiss, John S. Lane.

FIRST HILL CLIMB FOR RICHFIELD SPRINGS

RICHFIELD SPRINGS, N. Y., June 28—Under the auspices of the "Earlington," a first annual hill climbing contest will be held here on July 31. A course 5,000 feet long has been selected, and will be adequately policed. There are nine events, with a valuable trophy presented by Gasherie DeWitt for the free-for-all. The event has an A.A.A. sanction.



Troops That Guarded the Course

Winning Corbin Starting Up Hill

Crowd Seeking Points of Vantage

THE AUTOMOBILE

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ARE THE PARKS FOR THE PEOPLE OR NOT?

Incredible as it may seem, it is a fact that the great Yellowstone Park, purchased and kept out of the public moneys, and offering without a doubt the greatest trip in the country, is actually impassable to one great division of the people, and that division is the automobile driving and riding public. What possible harm or damage these machines or their occupants could do to the natural wonders of the Park, which horseback riders or other travelers could not do, is hard to imagine.

The automobile is essentially a vehicle for covering long distances in a comparatively short time, and with comfort to its occupants. On a trip through this immense reserve of natural wonders, what is more natural than such a means of conveyance?

Moreover, this swift means of locomotion would materially decrease the running time between the usual stops, and in this way render the use of the Park more safe. If motor cars had been permitted at the time of the recent holdup in the park, it is a fair assumption that the robber would never have escaped, or the robbery would never have taken place. As a preventive of crime alone, then, the machines should be allowed the freedom of the Park.

But, more to the point, the common people to whom the Park, in the last analysis, belongs, should have the use of it, whatever the means of conveyance employed by them. It would appear as if some very strong element, directly or indirectly interested in the transportation companies, was using all of its power to keep out any form of transportation which would reduce their monopoly and consequently their revenue.

It seems a shame that the property of all the people should thus be made a source of revenue for a few favored ones. Every automobile association and club, as well as influential owners and drivers not members of any club or association, should use every endeavor to have this matter brought up and remedied at once through their representatives in Congress. This discrimination should be stopped, and quickly, as it is rank class discrimination and has no basis of sound common sense.

* * *

STATISTICS THAT CAUSE REFLECTION

Some 200,000 automobiles is the estimated output for the so-called "1910" product. These figures are somewhat staggering, but from present indications it would appear that the total is based on a substantial optimism resulting from the excellent "1909" selling season.

There isn't any question but that this great country is going to absorb thousands of automobiles in the next few years, for thousands of users of horse-drawn vehicles are yet to be supplied with the inevitable motor-driven successors.

But one cannot resist the inclination to utter a word of caution in safeguarding against any such calamity as an over-production, for 'tis better to have the supply fall below the demand than that the output should flood the natural sources for absorption of the product. True, the equilibrium would quickly be regained, but the damage accomplished in the interval would be ultimately at the cost of the many.

* * *

WE WILL PAY IF YOU'LL PAY

Why shouldn't horse-drawn vehicles be taxed as well as motor-driven ones? This question has been argued pro and con among autoists, and has even reached the stage where it can be taken up by country debating societies. The Automobile Club of Maryland has taken a determined stand in the matter; so determined, in fact, that a proposed automobile law may hang fire for some time. In that state a commission was appointed to confer with the automobile interests, and the commission and the club have outlined their views in different channels; the former along the cut-and-dried ways of fees on power and the latter agreeing provided a wheel tax is imposed upon the other users of the highways.

Naturally the agricultural interests do not wish a wheel tax when the farmers have to pay road and other taxes. But a new era is establishing itself, and the majority are realizing that automobiles are not half bad, after all. Now comes the stand of the autoists who agree to pay a license fee, graded according to horsepower, from six to fifteen dollars, provided that a "wheel tax is imposed upon all other vehicles within the State at a rate of 25 cents per wheel for one-horse pleasure vehicles, 50 cents a wheel for two-horse vehicles and one dollar a wheel for vehicles with four or more horses; and further, that all vehicles must carry lights at night."

WHAT NEW MASSACHUSETTS LAW CONTAINS

BOSTON, June 28—Massachusetts' new automobile law, prepared by the Highway commission and passed by the legislature after long hearings and numerous conferences with autoists and others interested, has been signed by Governor Draper and a part of it will go into effect the first of next month. The main part of the law, including the sliding scale of fees based on horsepower, will become operative January 1, 1911.

Four sections go into effect the first of July, namely, sections 7, 14, 16, and 17. Section seven makes it incumbent for owners to look after the equipment of their cars, requires that every motor vehicle of more than 10-horsepower shall be provided with at least two brakes, powerful in action and separated from each other, one brake to act directly on the driving wheels or on parts connected with the wheels. Each of the brakes must be strong enough to stop the vehicle within a proper distance, and one must be operated by foot. One brake is required for motor vehices not exceeding 10-horsepower, and for motorcycles. The section has the usual requirements as to the muffler and signaling apparatus, and in addition requires that every car shall have a lock or rachet brake to prevent its being started by unauthorized persons.

Some General Provisions of the New Code

This section makes a change in the matter of lighting. Under the present law lights must be displayed from an hour after sunset to an hour before sunrise; the new law makes the time allowance one half-hour. Every automobile must show two forward lights, but they need not carry the register numbers as is now required. The rear register number, however, must be illuminated and a red light must be shown behind. Every motorcycle must show a white light and it is stipulated that the white lights must be visible two hundred feet. Section 14 of the new law puts upon the operator a new responsibility in regard to other users of the highways. It provides that an operator must stop his vehicle and the engine immediately when approaching a horse or other draft animal if the animal appears to be frightened and if the preson in charge signals. A new clause requires that an operator in approaching or passing a street car which has been stopped to allow passengers to alight or embark, shall slow down and, if necessary, stop. Upon approaching a pedestrian who is not upon a sidewalk, and upon approaching an intersecting way, a curve, or corner where the operator's view is obstructed he must slow down and signal with a bell, horn or other device. This part of the law also requires operators to make square corners. Observance of this section, especially that part which requires signaling upon approaching a pedestrian is expected to prevent many accidents, but if strictly followed will create considerable din in the city streets.

Speed Limit Section Not Materially Changed

The speed limit section, number 16, goes into effect July first, but this is not greatly different from the existing law. The maximum limit remains at twenty miles an hour. The limit for the thickly settled or business sections, however, has been increased from twelve to fifteen miles an hour and the limit at crossings of way, corners, and curves, remains at eight miles. One of the most important parts of the law from the autoist's point of view, and also to the cities and towns, is section 17. Under this section, after next Thursday, every local regulation excluding automobiles from streets, or making special speed limits, except the local regulations of the island of Nantucket and those of the Metropolitan park commission, becomes null and void, and the local authorities are required to remove all signs and notices relating to the speed, operation and use of automobiles. The effect of this provision is to put the entire State, with the exceptions noted, under the State limits of 20, 15, and 8 miles an hour. If the local authorities believe that special regulations excluding automobiles or limiting their speed are still necessary, they may pass them, but they will not have any effect until they have been published in the newspapers, posted at points affected, and, most important of all, until they have been approved by the Highway commission as consistent with the public interests. No regulation will be valid which excludes automobiles from any State highway or from any main highway leading from any city or town to another. This part of the law gives the autoists the opportunity to protest against special regulations, which they consider onerous, without being under the necessity of preparing the elaborate protest required by the old law. Its effect, further, will be to bring about uniformity throughout the State in the matter of speed limits.

License Fees Are Based on the Horsepower

The Highway commission has not yet given much attention to the question of how it will determine the horsepower of motor vehicles for the purposes of registration next year, but it seems likely that it will use the A. L. A. M. formula, which seems to be the best available.

The fees for next year are $2 for a motorcycle, $5 for a truck or other commercial motor vehicle, $5 for automobiles of less than 20-horsepower, $10 for automobiles of 20- and less than 30-horsepower, $15 for automobiles of 30- and less than 40-horsepower, $20 for automobiles of 40- and less than 50-horsepower, $25 for automobiles of 50-horsepower or more; for automobiles owned by manufacturers or dealers, $25 for five cars, and $5 for each additional car; for motorcycles owned by manufacturers or dealers, $10 for ten cycles; for registration after October 1, one-half fees; for substituting the registration of an automobile for that of a vehicle previously registered $2; for substituting the registration of a motorcycle for that of a cycle previously registered $1; for original operator's or chauffeur's license $2; for renewal of license 50 cents; for examination of applicant for a license $2; for additional copy of registration certificate 50 cents; for additional number plate 75 cents; for additional motorcycle seal 50 cents. Free certificates and licenses may be issued to members of the foreign diplomatic corps. All licenses to operate will be for one year only, as is the case with certificates of registration.

Minor Changes That Were Made in the Law

Very little change was made in the law during its passage through the two houses of the Legislature. The most important change was an addition to section 3, which allows a rebate to a person who before August first transfers the ownership of an automobile registered in his name, and who applies for the registration of another automobile of less horsepower, of one-half the difference between the fees, and if he does not apply for another registration he will be entitled to a rebate of one-half the fee originally paid. Another change is in the section relating to the record of cars entering or leaving garages. The change relieves chauffeurs of the necessity of personally entering their time of leaving and other data required to be kept in the record book. The new law will give the Highway commission much additional work, but it will mean a large increase in the receipts of the State. Probably about one-half of the automobiles in the State will pay $5 a year, as is the case under the existing law, but the other half will be required to pay from $10 to $25 each. Furthermore the annual renewal of licenses to drive is expected to bring in considerable income. After the expenses of the automobile department of the Highway commission are paid all the balance of the fees will go into the State highway maintenance fund. This fund will also be increased by the fines received for infractions of the automobile law, for the new statute provides that all these fines shall go into the State treasury, instead of the cities, towns and counties, as is the case at present.

CLARKSON SUCCEEDS CHALFANT IN A. L. A. M.

Coker F. Clarkson has been elected assistant general manager by the board of managers of the Association of Licensed Automobile Manufacturers to fill out the term of E. P. Chalfant, who recently resigned as general manager to become identified with the Packard Motor Car Company. Mr. Clarkson has been connected with the association for some time in the mechanical and publicity departments and has been in close touch with its affairs. The following members of the board were present at the meeting in New York on Friday: M. J. Budlong, Packard; Charles Clifton, Pierce-Arrow; L. H. Kittredge, Peerless; Thomas Henderson, Winton; F. B. Stearns, Stearns; E. L. Thomas, Thomas; C. C. Hildebrand, Stevens-Duryea; S. T. Davids, Jr., Locomobile; H. H. Franklin, G. H. Stilwell, Franklin; William E. Metzger, E-M-F; J. H. Becker, Elmore; W. C. Leland, Cadillac; James Joyce, A. L. Co.; Elwood Haynes, Haynes; F. C. Chandler, Lozier; E. R. Hewitt, Hewitt; George Pope, Albert Pope, Pope; R. H. Salmons, Selden; George J. Dunham, Royal Tourist; M. S. Hart, Corbin; L. J. Hart, Waltham; W. C. Durant, Buick; G. E. Mitchell, Alden Sampson; E. P. Chalfant, general manager.



Coker F. Clarkson

PROLONGED TRIAL OF WINTON SELF-STARTER

BALTIMORE, June 28—The Winton Motor Carriage Company reports to-day that it was compelled to break the seal that as far back as February 22 was placed on the front of the Winton Six used in this city for demonstration purposes. This was sealed by Frank W. Daring, secretary of the Automobile Club of Maryland, in the presence of i distinguished gathering of automobile enthusiasts.

It will be recalled that the engine was so sealed as to make it impossible to start except by the Winton mechanical self-starting arrangement, fitted to all Winton cars since the commencement of 1908. The car has been in continual use since it was sealed, and until to-day never failed to start by the pressure of a button. To-day, while the car was in use by the officials of the Good Roads Commission, the engine, upon being asked at Laurel, failed. B. B. Tatham kept the button pressed, the engine turned over and over and over, but did not fire. After several ineffectual efforts and after all the pressure had been usd from its starting tank, it was decided to break the seal, and while there were no tears shed, Tatham was considerably bowed down with sorrow.

Upon return to Baltimore the apparatus was examined and found to be in perfect order, the trouble being located at the battery, which had exhausted itself, owing to a piece of copper wire having short-circuited the same. It should be observed that although the Winton Six is fitted with the Eiseman Magneto, yet it has the ordinary coil and accumulators for starting purposes.

KNOX TIRE TROUBLES EXAGGERATED

CHICAGO, June 26—First reports of a race often get a little bit twisted when it comes to specifying the exact behavior of a car. For instance, Bourque and Denison, the Knox team, in the Cobe cup race, are learned to have had a minimum of tire troubles. Bourque finished with the original Knox tires on his front wheels and only made a change of the two rear tires on the twelfth lap, which occupied less than two minutes. Denison, during his brilliant run, only changed one tire, and this was accomplished on the road in a little over a minute. It is natural that the Fisk Rubber Company should want marked attention called to the revised findings of the tire experience of the Knox team during the race.

STATE LAW IS HELD SUPREME IN OHIO

COLUMBUS, O., June 28—A decision far reaching in its effects has been handed down by the Supreme Court of Ohio by which the municipal ordinances providing for licensing motor cars were declared unconstitutional. The decision in effect does away with all regulative legislation on the part of municipalities, placing that power in the hands of the General Assembly through the State automobile department.

The decision is the outcome of a strong fight put up by the Columbus Automobile Club against the city law department of Columbus. City Solicitor Marshall attempted to enforce the municipal ordinance, providing for a tax of $7.50 on touring cars and $5 on runabouts. The Columbus Automobile Club in the name of William Frisbie, one of its members, started a suit, and an injunction against collecting the fees was granted. In the Court of Common Pleas and in the Circuit Court the automobile club was worsted. But, never daunted, the case was appealed to the final tribunal with the result above stated.

The decision will effectually stop all municipalities of the State from imposing licenses or taxes on motor vehicles.

NEW SMALL CAR FOR ENGLISH DAIMLER

COVENTRY, ENGLAND, June 22—Thoroughly satisfied with the performances and public reception of the 22 and 38-horsepower slide valve engines, the English Daimler works has now brought out a small model of 15-horsepower, embodying all of the main features of Daimler design, including the Knight-Daimler slide-valve engine. This will be of 78 mm. (3 1-16) bore by 100 mm. (3 15-16) stroke. Two distinct models will be marketed, both with shaft drive, and the usual three-speed gear-box, following the 22-horsepower model very closely. One of the models will be fitted with a very raking steering post and torpedo body for those desiring a fast runabout. A large number will be produced and sold next season for £500 ($2,500), it is understood. The output of the two larger sizes will not be diminished any on account of this newer model.

FRICTION DRIVE PATENT SUIT DECIDED

BOSTON, June 28—Some months ago the Buckeye Manufacturing Company, Anderson, Ind., makers of the Lambert cars, brought suit against the Waltham Manufacturing Company, Waltham, Mass., for alleged infringement of the patents of the former covering friction driving. This suit has been on in the United States Circuit Court of Massachusetts, and was just decided recently. Justice Colt, in rendering a decision, held that the patent was valid, and had been infringed by the defendant. The latter was therefore enjoined from further use of this device and was required to pay $1,000 damages.

CHEVROLET USED STROMBERG CARBURETER

CHICAGO, June 26—Chevrolet, who evolved as the winner of the Cobe cup, employed a Stromberg carbureter on his Buick, and not one of another make, as was erroneously printed in the June 24 issue. The first information came from an official of the Buick Company, who apparently was not thoroughly informed in the premises. The Frenchman reports that the carbureter did not give a particle of trouble.

SAVANNAH GETS RENAULT TAXICABS

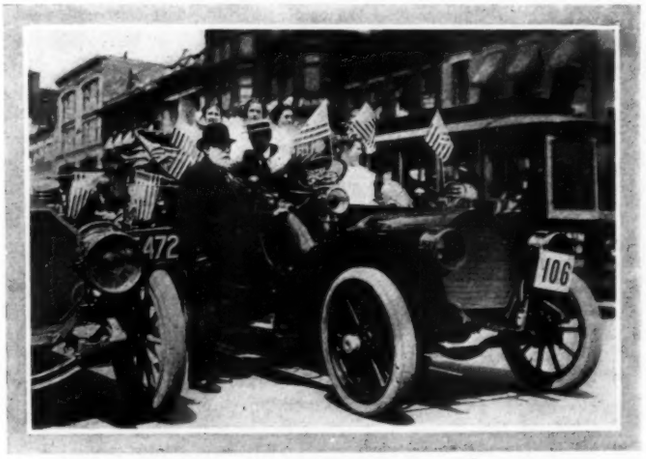
SAVANNAH, GA., June 28—This city's first taxicabs, ten Renaults, arrived Friday, and the Savannah Taxicab Company has already started them on the streets. The cars will be kept in a spacious garage on Broughton street, erected for the purpose, and the concern, in addition to the taxi business, will store and sell automobiles and sundries.

What the Clubs Are Doing These Days

BUFFALO HAS RECORD ORPHANS' DAY

BUFFALO, June 28—Last year the Automobile Club of Buffalo had an Orphans' Day celebration which broke all records, and it was thought that it would stand, but on Wednesday the previous achievement was shattered. With 275 automobiles in line, 2,289 children were given an outing, the greatest number of little folk ever gotten together on such an occasion. The plans had been well made and included a long ride through the city and parks, and an afternoon of delight at Luna Park. Not only were the private automobiles of the city out in force, but the factories donated all that they had, various labor and other organizations hired cars, and the taxicab and sightseeing companies contributed, so that the large total was made up.

John M. Satterfield, president, and Dai H. Lewis, secretary of the club, had charge of the outing, and felt well paid for all the work such a successful affair involved when they led off the procession after a parting "Godspeed" by Mayor J. N. Adam.



Mayor Adam Giving President Satterfield the Word

Every orphan had a small flag in one hand, and in the other held captive a struggling toy balloon, contributed by the Diamond Rubber Company. The ride was over Main street to the Terrace, thence past the City Hall, where the city officials reviewed the parade, then over 25 miles of asphalt-paved streets, through the various public parks and parkways, to Luna Park, where each little guest was given the freedom of the place and all its amusement resorts, besides sandwiches, bananas and milk.

On July 7 the Automobile Club will conduct a one-gallon mileage contest for pleasure cars, under an A. A. A. sanction. There will be five classes under the present rules, and in each class will be two divisions—one for private owners and the other for manufacturers and agents. Entries will close on July 5, and blanks, rules and information may be obtained from the chairman of the contest committee, Laurens Enos, 760 Main street.

SHAMOKIN'S "25" FORM AUTO CLUB

SHAMOKIN, PA., June 28—Twenty-five automobile owners of this place have formed the Shamokin Motor Club, and a charter has been applied for. It is expected that within a short time there will be at least 50 members of the organization, and the Pennsylvania Motor Federation will be joined. The following officers were elected: President, C. Q. McWilliams; first vice-president, Thomas Mullen; second vice-president, George Robertson; secretary, George W. John; treasurer, Frank P. Llewellyn. Suitable quarters for the club will be secured.

LONG ISLANDERS INCREASE MEMBERSHIP

BROOKLYN, June 30—Campaigns for increased membership in the Long Island Automobile Club, of automobilists of this city and vicinity, have been wonderfully successful during the spring and early summer. At the regular monthly meeting of the club last night, 39 new members were elected, and there are a number of applications to be posted for the required 10 days, to be acted upon at the next meeting. In answer to a number of inquiries for a route from the club house to the Queensboro bridge, the touring board has advised the following: North on Bedford avenue to the fountain, turn left around the fountain and then right into Berry street, keep straight out Berry street bearing left into Lorimer street at the end of Berry street, straight through Lorimer to Noble street, which is at the end of Lorimer street, turn right one block to Manhattan avenue, turn left on Manhattan avenue, granite block stone pavement (poor), straight across Vernon Avenue bridge, turn right first street on leaving bridge, and then left into Jackson avenue straight to the Bridge plaza.

COLUMBUS GIVES 1,600 CHILDREN OUTING

COLUMBUS, O., June 28—The Columbus Automobile Club, June 24, gave an outing to more than 1,600 children, many of whom were orphans, at the grounds of the Columbus Country Club. The affair, which has become an annual event, was a success in every particular. The start was made from the State House grounds at 8 o'clock. Each child was provided with a ticket telling the car in which it was to ride, and these were distributed by officers of the Salvation Army and the Volunteers of America. A short parade of the streets of the city was made before the pike to the Country Club was reached. The car of Governor Harmon headed the parade and that of Mayor Bond followed. Arriving at the Country Club, each child was given a lunch-box containing many dainties and sweets. The return was made in the afternoon.

PATERSON WILL HAVE SEALED-BONNET RUN

PATERSON, N. J., June 28—The North Jersey Automobile Club of Paterson has decided not to hold a hill climb, on account of the danger attending affairs of this kind, and to schedule a 100-mile sealed-bonnet contest for July 17. The run will be in four laps of 25 miles each, and part of the route will be along the main street of the city. A committee consisting of Jacob von Der Clock, chairman; Edward D. Conover, Harly B. McGinley, and James Schofield, will have charge of the run.

SOUTH BEND, IND., NOW HAS AUTO CLUB

SOUTH BEND, IND., June 28—At a recent meeting in the banquet hall of the Oliver Hotel the South Bend Automobile Club elected the following officers: President, L. P. Hardy; vice-president, Walter A. Hager; secretary, Samuel B. Robinson; treasurer, Jacob Woolverton. E. C. Witwer, H. M. Kaufman, and Dr. George V. Nienstedt were elected to serve with the officers as a board of governors. The club now has a membership of 50 and is hustling to increase to 100 or more.

ALBANY CLUB HAS FIFTH ANNUAL RUN

ALBANY, N. Y., June 28—The fifth annual tour of the Albany Automobile Club finished this afternoon. The tour was entirely a pleasure event, without any competition, and the route was a scenic one, including the Green and White mountains, the Berkshire hills, and the Atlantic shore above Boston. The cars started on June 22.



This Kentucky Product Is a Thoroughbred, Too

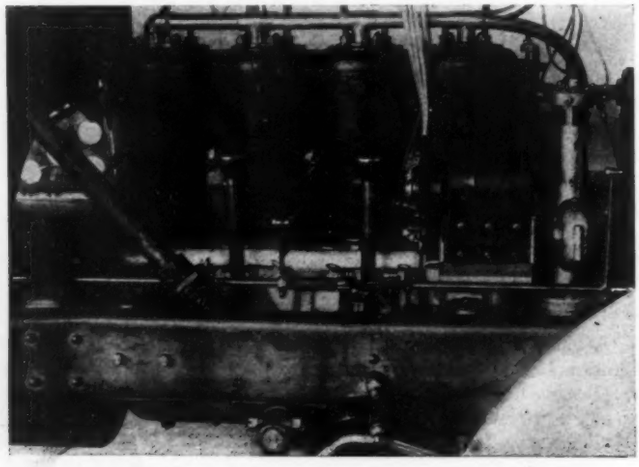
NEWCOMER FROM THE BLUEGRASS REGION

There are very few motor cars manufactured in the "Sunny South," so that the few are more noticeable than would be the case were their number larger. One of them, the most recent addition, by the way, is worthy of special attention, and its product, equally so. This is the Lexington Motor Car Company, Lexington, Ky., which is announcing the details of its Model A touring car, the output for this year being confined wholly to the one model.

Rather than use an indifferent lot of parts, as constructed in their own shop, the same having been running but a few months, the company have given prospective customers the benefit of the doubt, and will use only tried and proven parts as made by the country's best specialists in those particular lines.

So it is that Model A is seen to be powered with a 40-45 horsepower engine of the famous Rutenber make. The size of this is four cylinders, 4 1-4-inch bore and 5-inch stroke, the cylinder castings being made individual for easy and cheap replacement, if necessary. This engine is too well known to require mention of all of the details, but it may be worth while to state that it is of the standard water-cooled type, with five bearing crankshaft of large diameter, double ignition, if specified, a vertical shaft in front forming the source of power for all accessories except the fan, which is belt-driven from the extension of the crankshaft. This accessory shaft drives in succession, from the bottom up, the oil pump, magneto, and the timer. The latter is used with the battery system, which is regularly furnished, but provision is made for a magneto, and the Bosch will be fitted as an extra.

Clutch Merits Attention—A very large flywheel fitted to the motor makes for continuous turning effort and houses the clutch as well. The latter is of the regular cone type, fitted with cork inserts, the action of which is to give easy engagement, coupled with great holding power. Back of this is the transmission, which delivers no less than three speeds and reverse, operating on the selective principle. The gear shifting is done with the inner lever at the right side, this being of the ball-ended style and operating in an H-slot. The transmission shafts are both mounted on ball bearings of the Hess-Bright make, with the driving shaft located above the countershaft.



Ignition Side of the Motor, Showing Bosch Magneto

From here to the rear axle, the drive is through the medium of a very large propeller shaft. It has a universal joint at each end, which joints act to nullify the strains of the angular drive. The rear axle is one of the Timken masterpieces, being of the full floating type, the wheel drive at the outer ends taking the form of six-jaw clutches. In order not to have any of the loading strains come upon the driving shaft, the arrangement is such that the casing, a solid steel casting, without strut rods, carries all of the weight. Differing from the rear axle in the form of service, which it must render, the front axle is given a different form, that of the I-beam. Upon this the front wheels are carried through the medium of tapered roller bearings.

The cross rod is carried back of the axle, so as to be protected from injury, and the steering rod is above the I-section for the same reason. Steering is effected by a gear of the Gemmer production, which acts on the double worm principle.

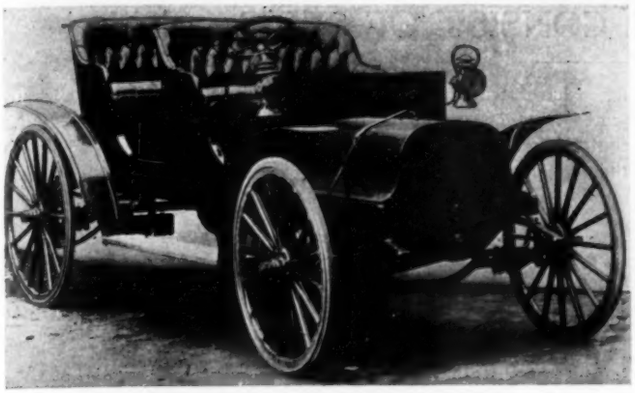
Frame Follows a Popular Shape—The main frame of the car is of pressed steel, of channel section. In its form it follows a popular shape, being straight in both a horizontal and vertical plane, back to the rear axle, where it is given a sharp upward bend to clear the axle and give sufficient room for a large rebound effect. The forward portion carries a sub-frame upon which the engine and transmission are hung. This frame is connected to the axle by springs of the semi-elliptic type. The same style of spring is used both fore and aft, the two differing only in length. The fronts are 40 inches long, and the rears 52. They are assembled from a very wide stock, with all leaves lipped, and before assembling are well lubricated with graphite. The hanging is by double shackles.



Timken Rear Axle Used on Lexington Model A

Very large wheels are used, 36 inches throughout, and equipped with 4-inch tires. The front wheels have 10 spokes and the rears 12, these being of the dovetailed and interlocking type, which, coupled with the dished shape, make the strongest wheel that has ever been produced. To the rear wheels, the large diameter brake drums are bolted, with a bolt to each spoke. These brakes are double, with a band set on the outside of the drum, and within, internal expanding brakes.

The body work is of a high order, special attention being given to that part of the work. As ordinarily sent out, the body seats five, but the long wheelbase of 120 inches allows a body which is long enough to seat seven. So, when specified, two extra folding seats will be placed in the tonneau. The painting and trimming are also of a very high order, as would be necessary with a fine body, while the exposed woodwork is right up to snuff, too. The steering wheel and dashboard are of Circassian walnut, and highly polished. The latter is what is known as a clean dash, being encumbered with nothing but the coil box. The painting of the body is optional with the purchaser. The body comes equipped with irons for a top, although this is an extra. A full set of tools and spare parts is included, housed in a neat, yet compact, tool-box, located on the left running board. Complete with gas tank, robe rail, foot rest and other parts usually considered as extras, the car lists at $2,500.



Chase Car Designed for Special Business Uses

NEW UTILITY WAGON FOR WESTERN ROADS

Pursuant to a well-defined policy to give the public what it wants and asks for, the Chase Motor Truck Company, Syracuse, N. Y., is now bringing out a surrey or business wagon, which is in great demand in the West. There, the call is for a combination of business and pleasure, which extends even to the automobile. The new Chase model is patterned along lines which permit it to be used for this purpose, or it may be made into a commercial wagon, pure and simple, by means of a few small changes. In mechanical construction, that is, the chassis, it does not differ radically from other Chase products.

The power is supplied by a three cylinder vertical engine of the two-cycle type. The bore of this is 3¾ inch, which with a stroke of 4 inch allows of a conservative rating of 15 horsepower. The simplicity of this power plant is even more apparent when it is considered that it is air-cooled as well, which means that there is no pump, no water to be renewed frequently, no piping to leak, nor any other sources of trouble.

Simplicity both in number of parts and their operation is heightened by the use of a two speed and reverse planetary transmission, running in a bath of oil. This reduces the control to the point where anyone can operate it.

Even the oiling system shows what an effort has been made to reduce the number of parts to a minimum, as a mechanical oiling device means numerous leads to leak, means a driving mechanism, which adds weight and complications. For this reason, the makers have adopted the self oiling system, in which the oil is introduced into the fuel tank, when the latter is filled. This method brings the lubricant into the cylinders with the fuel, whence the interior is thoroughly lubricated. From the cylinder the oil will drop to the bottom of the crankcase, from which point it will be splashed onto the sides of the case, and flow to the two bearings. Nothing could be simpler.

From the jackshaft, the final drive is by means of double side chains to the rear wheels. These are of large diameter, following modern tendency, in fact, anticipating a few years, the fronts and rears both being 40 inches in diameter. They are equipped with tires of solid rubber, 1⅝ inches in diameter, and spokes of 1¼ inches.

Combined with large wheels, the long wheelbase of 100 inches makes a very easy riding car, while having an unusual amount of road clearance, and the ability to surmount large obstacles, if necessary. A set of full elliptic springs helps to make the car ride easy, while standard tread is adhered to.

The brakes are of the band type and are placed on the rear wheels, the lining being such as to allow easy renewal. Considering the weight is but 1,500 pounds, the axles fitted to this car are ample in size, and their 1¼ inch square section will carry loads far in excess of anything the wagon body would house.

The body ordinarily fitted is of the surrey type, with removable rear seat, the seat in position accommodating four passengers, which the removal and consequent conversion into a runabout reduces to two. A top of the canopy style may be had if desired but at an addition to the regular price of $900. This car is designed to take care of the needs of traveling salesmen and to enable them to cover a large number of towns each day.

For this purpose, the removed rear seat leaves a large space behind, which gives room for salesmen's luggage or sample cases. In this way, not only is the railroad fare saved, but more important than that, much time is saved allowing the same man to cover more towns, with less fatigue. Low operating cost, coupled with the inherent simplicity of mechanism and control, make a car which is ideal for this purpose. Telephone and electric light companies will find this model of great value to their trouble men, while farmers will appreciate it for an errand wagon, and with the added rear seat, for pleasure trips.

ANOTHER WHITE GASOLINE MACHINE

One of the largest buggy manufacturers in the West, the George White Buggy Company, Rock Island, Ill., has established an automobile department and will take up and push this work vigorously. The machine upon which the efforts will be concentrated is of the high wheel type with solid tires. Four models are listed, differing only in the body work.

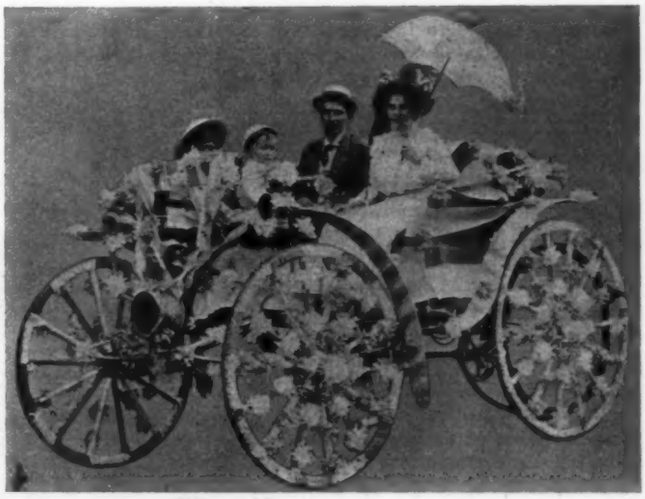
The motive power is a two-cylinder opposed air cooled four-cycle unit, set crosswise of the steel frame, but attached directly to the latter. The fan flywheel is placed in front and the transmission of power is through a two-speed planetary gear. From this a shaft drive of the approved type, and inclosed in a tube serving as a torsion rod, drives back to the rear axle.

The wheels are of large diameter, 36 front and 38 rear, equipped with 1¾-inch tires of the solid type. In contrast with the usual form of motor buggy, this one is fitted with magneto ignition, the magneto being placed between the two cylinders on top of the crankcase, and is friction driven from the rim of the flywheel.

The steel frame carries at the front and rear a pair of full elliptic springs, these being attached to the frame by means of lugs, which extend upward. The result is to bring the center of gravity as low as is consistent with large road clearance.

SOUTHERN CAR DEMONSTRATORS OUT

BALTIMORE, June 28—Although only engaged in business for a short time, the Carl Spoerer Sons' Company has a number of orders booked for the latest models. These include a 30-horsepower machine, the demonstrator of which type is out, and a 50-60 horsepower car, which will be out in a few weeks. Both models are patterned very closely after the famous German car, the Mercedes. The cars are known by the name of Spoerer.



Dr. C. K. Caruthers' Holsman in Floral Parade

That the well-known high-wheeled Holsman can make its mark in a decorated parade is evidenced by the photograph taken at Pine Bluff, Ark., on the occasion of the Arkansas Travelers' Convention, in that city, June 3.

PIERCE LINE FOR 1910 WILL CONSIST OF SIXES ONLY

BUFFALO, N. Y., June 28—With considerably over one thousand of its six-cylinder cars in successful operation on the road, and the demand for them greater during the past season than the immense new factory could supply, the Pierce-Arrow Motor Car company has announced that for the coming season it will manufacture nothing but six-cylinder cars. A number of considerations have been responsible for this decision, the first of these being the unqualified success that has attended the use of the cars under all conditions of travel by owners. Another is that the indications are that the demand for six-cylinder cars of this make next fall and next year, will be so great as to engage the entire work of the factory to the exclusion of other types.

The coming season will be the fourth in which the Pierce-Arrow Motor Car company has made six-cylinder cars, although it is the first in which it has confined its output to this class. The first six-cylinder cars were placed on the market in the latter part of 1906, when one model was made. One of these cars was entered in the Glidden tour as a non-contestant in order to give it the hardest and most thorough test possible. The car was subjected to much greater hardships than any contesting car, and at the end of the tour showed a mileage of almost double that of the tour itself. By this proof of general efficiency and dependability, the performance paved the way for the adoption of the six-cylinder motor by a large number of motor car users, which has resulted since in their widespread popularity by those who want a car for year-round work under all kinds of road and weather conditions.

The announcement, according to officials of the Pierce-Arrow company, indicates that this company, one of the pioneers in the industry, in making nothing but six-cylinder cars, had found that its experience had cancelled the last doubt in the mind of the public as to the advantages of the six over any other type of motor. For 1910, then, the company will produce three types of chassis, a 36-horsepower, a 48-horsepower, and a 66-horsepower, all of which may have runabout, miniature tonneau, touring, or enclosed bodies fitted.

ELKHART COMPANY BUYS NEW PLANT

ELKHART, IND., June 29—At a meeting of the directors of the Elkhart Motor Car Company, of this city, held last week, it was decided to purchase the new factory building originally erected for the Sterling-Hudson Whip Company, and use it for the manufacture of automobiles. Lack of space in the present factory seriously interferes with prompt fulfillment of orders, and with the new addition the company expects to get out 1,000 cars a year, and employ 400 men.

NATIONAL CAPITAL PLANS FLORAL PARADE

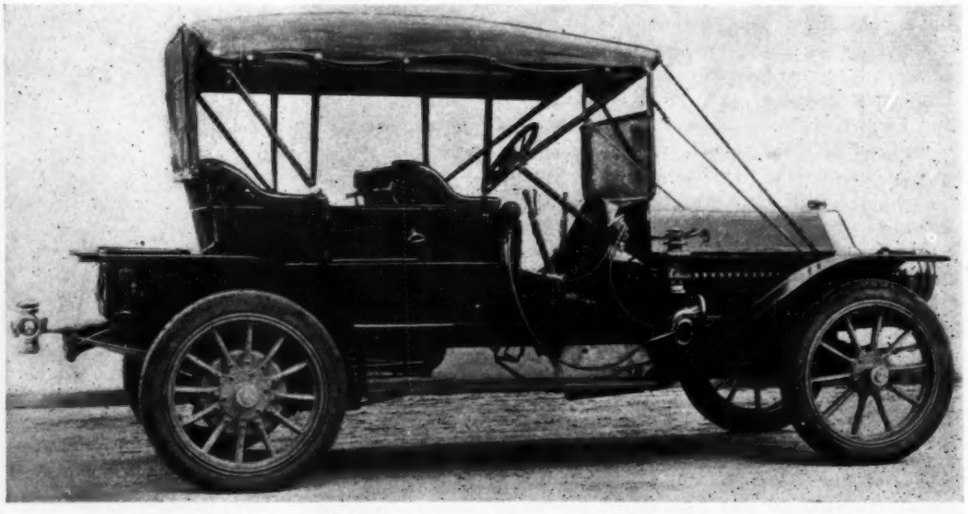
WASHINGTON, D. C., June 28—A floral parade for automobiles and motorcycles is the latest project on foot here. The *Post* has offered prizes aggregating $1,200 in value for the best decorated cars in the several classes, and July 5 is the date selected. The parade will start at half-past four in the afternoon, and the route will be down Pennsylvania avenue to the Peace monument and return, thence to the speedway along the Potomac River, where the judging will be done.

NEW GLIDE SUBURBAN MODEL SHOWS CLASS

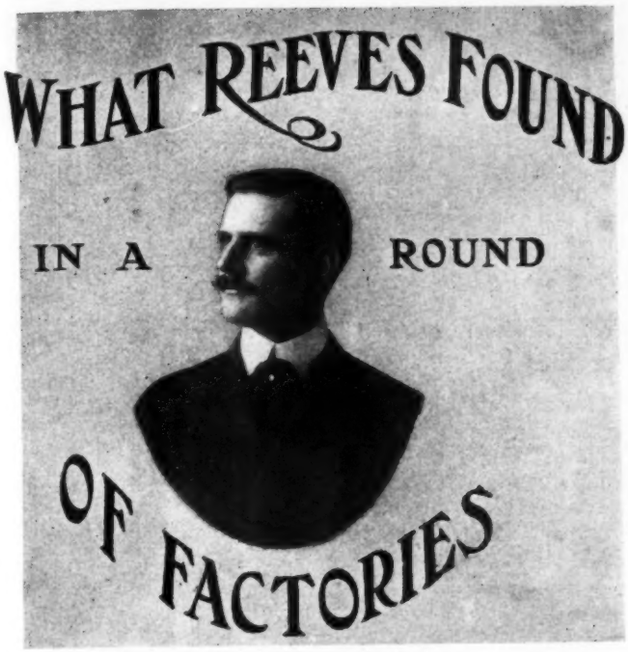
PEORIA, ILL., June 28—Increased interest in touring and tours has given body builders much work to do in the line of special bodies, to conform to owner's special requirements. To obviate this, manufacturers are exercising considerable ingenuity to produce high-class bodies which will meet these requirements and thus save the expense and bother of special coach work. A recently catalogued body production comes in this class.

This is the new Suburban model put out by the Bartholomew Company, manufacturers of the Glide. It is a close-coupled body with a place at the rear fitted up for carrying a trunk and two suit cases. This light roadster type of body is fitted to the regular Model G touring chassis, which with a 120-in. wheelbase insures easy and comfortable riding. This same matter is provided for in the springs, these being 40 in. long in front and 58 in. in length for the semi-elliptic rear springs.

This successful new model is well powered with a 4-cylinder vertical motor of 4¾-in. bore by 5-in. stroke. While rated at 45-horsepower, it is said to deliver much more than this. This company was one of the pioneers in the rear axle location for the transmission, which is fast becoming general. It is of the three-speed variety and operates on the selective principle. The tires on Model G are 36 by 4½ in. on all wheels, thus securing interchangeability. In case of extra rapid wear this allows of changing the fronts and rears, so as to lengthen the life of both, the overworked rears being placed in front where the duty is less severe, while the lightly worn fronts are put into service in the back wheels. Although this body is in the nature of a special requirement, the company isn ot making any extra charge for it, but is selling it at the regular Model G price of $2,500, with the option of an Eisemann high-tension type E L magneto at $2,650. The photograph shows the car ready for use.



Suburban Model of the Glide—Latest Product of the Bartholomew Company



ALFRED REEVES has been making a round of the factories, of course visiting mainly those of the American Motor Car Manufacturers' Association, of which he is the energetic general manager. Being a keen-eyed observer, Mr. Reeves accumulated much information and he supplies a most interesting chapter calling for conscientious reading.

"Of the 200,000 cars planned for the 1910 market," says Mr. Reeves, "165,000 will be of the so-called pleasure variety, 30,000 of the high-wheel buggy class, and some 5,000 utilizing steam and electricity, and also including commercial vehicles. With an average price of about $1,200, and the greatest demand for cars below $1,500, and still no decrease in the demand for high-grade cars, the total business in cars alone will approach $200,000,000.

"Yet with these extraordinary figures on next year's motor vehicle output there is no reason to fear an overproduction, owing to the fact that America's greatest purchasing element in the middle class, has now entered the field together with the farmers, who have been liberal buyers of cars during the year 1909. When it is taken into consideration that there are now 150,000 motor cars in this country and at least that number can be turned out this year, a fair idea can be gained of the present status of the automobile industry.

"It is estimated that this year has seen an oversold condition of about 10 per cent. To many manufacturers it would appear that they could have sold twice as many cars as they made, but in most cases the demand has generally been supplied, and only a small portion of the buying public has been unable to get cars. If next year's record production is to supply the oversold condition of this year the result will be an unsafe business condition. With the great purchasing power of the middle class and of the farmers, there is every reason to believe that the production will be absorbed.

"The importance of the farmers in the buying of automobiles and the influence they will have on road improvement, is more than the average Easterner can understand. There are more than two million farmers in this country, and they have had a big share of prosperity. Kansas, Iowa, and Nebraska have been good automobile States. One maker in Anderson, Ind., told me that 75 per cent. of his $1,250 cars were sold to farmers. The salaried man who believes in good things for his family and the business man who requires quick individual transportation, has made for a greater demand for motor cars, and that situation will be increased very markedly in the coming year of 1910."

Mr. Reeves visited on his Western trip factories in Cleveland, Dayton, and Cincinnati, Ohio; New Castle, Muncie, Indianapolis, Anderson, Mishawaka, and Auburn, Ind.; St. Louis, Mo., and Chicago, Moline, and Peoria, Ill.

On the situation at the factories Mr. Reeves said:

"At Cleveland, Paul Gaeth is making **Gaeth** cars in his usual conservative way, turning out a limited number carefully made. There will be comparatively few changes on the 1910 **Gaeth** as compared with this year's car. Mr. Gaeth is adding to his line a single cylinder commercial wagon for light delivery work.

"At Dayton, O., I was astounded at the size of the Dayton Motor Car Company's plant, which covers three city blocks. A new six-story addition to the factory is being put up that will be 140x110, supplying almost 1,000 square feet more of floor space. I doubt whether any concern in the country makes more of the car than do the **Stoddard-Dayton** people. The company makes its own axles, springs, frames, and aluminum castings. Something like $60,000 worth of new machinery is being installed that will make for a greater production in 1910. The Dayton company is famous for its care of agents, and C. G. Stoddard, the general manager, says the same agent policy would be continued next year. As indicating the size of the plant, I might say that there are 1,600 men employed and that 60 men are engaged in the inspection and testing department.

"The new **Courier** car, selling at $1,000 and marketed by a new $200,000 corporation in Dayton, is practically an offshoot of the Dayton Motor Car Company, for in it are most of its officers and a number of its employees. The car will follow the lines of the **Stoddard-Dayton** car, but on a smaller scale. It will be high-class throughout.

"Another concern in Dayton which is making progress is the **Speedwell** Motor Car Company, which has planned a production of 700 cars for next year. The concern is putting up factory additions, and R. D. Schenck, the president, tells me most of the product has been spoken for by agents.

"Incidentally I was told in Dayton of **a new taximeter** that has many advantages over taximeters now in use. Not alone does it register the distance, amount of fare, and supply similar records, but it turns out a slip just like a cash register, giving the distances, the number of the cab, the time, and the fare. This is given to the patron when he leaves the cab and will be a great source of satisfaction.

"Dayton has been wildly excited over the Wright brothers, and gave a reception such as should be given to men whose names in future will figure with those of Bell, Morse, and Edison. There is an aeroplane club in Dayton with 250 members.

"Cincinnati has been a great city for carriage manufacturers, and at least ten big concerns have announced their intention of turning out motor cars. The majority of them will make cars of the buggy type, but the Jewell Carriage Company is putting out a high-grade four-cylinder car to be known as the **Ohio** that should become a factor in the trade.

"From Cincinnati I visited the giant plant of the **Maxwell-Briscoe** Motor Company at New Castle, Ind. It won't be very long before the name of that town will be changed, for the **Maxwell-Briscoe** people have the biggest factory in town and are factors in the general life. There is a Maxwell amusement park, a Maxwell ball team, a Maxwell gymnasium, and a Maxwell-Briscoe band of forty pieces which is a credit to any community.

"J. B. Meyers, the general superintendent, stated that 1,600 men are now on the pay-roll, and there is great difficulty in housing the help. Houses have been put up at an astonishing rate, but upon my visit there at least 200 men were living with their families in tents.

"The manufacture of **Maxwell** cars is ideal, for the raw material goes in at one end of the factory and comes out a finished product at the shipping platform. Cars are coming

through at the rate of forty a day, but the factory is far behind in its orders. A new addition is being put up, 721-310, and another, 721x60. A third floor is also being added to the present factory, all of which is expected to result in a greater production of cars next year.

"At Anderson, Ind., the **Buckeye** Manufacturing Company stated that 75 per cent. of its product this year had been sold to the farmers, and that it is planning for 1,500 cars for next year. The concern says the agricultural people have more money than at any other time in their history and look upon the automobile, not as a luxury, but as a necessity for individual transportation. The friction drive **Lambert** has appealed to them strongly owing to its simplicity. The same design of car will be made next year.

"Claude E. Cox, who designed the Overland, is now chief engineer of the **Inter-State** Automobile Company at Muncie, Ind., which plans a production of 2,500 cars for next year. The company now has a building 440x140, and will build an addition equally as large. The car is of 35-horsepower. F. E. Hart, a successful business man of Muncie, is president of the **Inter-State** Company, and D. W. Henry is sales manager.

"Indianapolis manufacturers accepted an invitation of H. O. Smith, the A. M. C. M. A. chairman, for a luncheon at the Columbia Club on my visit to that city. In attendance were John N. Willys, **Overland** and **Marion**; Walter E. Marmon, **Marmon**; V. A. Longaker, **American**; A. C. Newby, **National**; Carl Fisher, **Empire**; Herbert Rice, **Waverly**, and H. O. Smith, **Premier.** We had an interesting discussion of automobile matters generally, and the next day I visited the various plants.

"One of the sensations in the town has been the advancement of the **Overland** under the leadership of John N. Willys. The company now has five factories working to get out the cars promptly and keep agents supplied. It will have two new buildings near the present Overland factory, each 368x80, two stories high. A production of 10,000 **Overlands** is planned for next year and 1,000 **Marions.** Overlands will be turned out at the new Pope-Toledo plant at Toledo, as well as in Indianapolis. There will be three models of Overlands next year.

"Mr. Willys has gone to Europe to look over trade conditions there, but will return early in September. The sales end of the business is now being looked after by F. A. Barker, formerly with the Dayton Motor Car Company. There are now 1,200 men working for the Overland Company at Indianapolis and 400 on the pay roll at Toledo. The company has been unusually successful.

"That more and more concerns are making their own parts is evidenced by what I saw in the **American** factory, which I visited with Mr. Longaker. Almost the entire car is being made under one roof, instead of depending upon parts makers for supplies. The **American Traveler**, with its underslung body, is growing more and more in favor, and the production is being increased to keep up with the demand.

"Howard Marmon's genius in motor car construction is evidenced in the small **Marmon** of this year, which has met with such favor and which will be continued with comparatively few changes for 1910. The motor is of 32 horsepower and while it is of the small type now so popular, the material and construction throughout is of highest grade. The company will have two machines in the Glidden Tour.

"The **Premier** plant is working nights, for H. O. Smith is a firm believer in caring for agents by giving them cars when the demand from the public is strongest. The **Premier** has had an unusually successful year in contests, and three of them will be entered in the Glidden Tour, besides the Premier that will act as an official car. Additions will be made to the plant next year, although Mr. Smith is inclined to grow conservatively rather than with a rush.

"A. C. Newby, at the **National** plant, showed me plans for a new addition that will supply 40,000 square feet of space. The present line will be continued next year, with some slight changes, the cars having made good in every way. There will be a small four and a big four, and a little six and a big six.

"The **Empire** is the latest car in the field, being the production of R. H. Hassler, backed by a company in which A. C. Newby and Carl Fisher are interested. The old Mohawk Cycle Works factory on the outskirts of Indianapolis has been taken and a thousand cars will be put through for 1910. The motor is 3½x4, cast *en bloc.* A runabout body is fitted, 32x3½ tires, and the price will be $800.

"St. Louis is a busy automobile town just now, the three companies there being the **Moon** Motor Car Company, **St. Louis** Car Company and **Dorris** Motor Car Company.

"Next year the horsepower of the $3,000 **Moon** car will be increased from 35 to 40, and in addition the company will make a $1,500 car rated at about 30 horsepower. The company has had an unusually good Western business, incidentally selling more cars in the State of Texas than in any other section of the country.

"A new company will take over the St. Louis Car Company, which will discontinue the American Mors to make a new car of American design, called the Standard Six, with a motor of 50 horsepower. The general manager is H. E. Walton.

"The **Dorris** Motor Car Company continues to turn out high-grade cars, and each year has seen a decided increase in its business. Manager Krenning is a believer in the one-chassis idea, and the 1910 car will be a refinement of the same model which it has used for the past three years and which has proven so satisfactory. It is of 30 horsepower and sells at $2,500.

"At Peoria I noted a decided increase in the size of the factory of the Bartholomew Company, makers of the **Glide.** The plant will be aided in its production next year by a new factory, plans being under way for the taking over of the old St. Louis Carriage Company plant. Mr. Bartholomew, besides his interest in the Bartholomew Company with his son, A. Y. Bartholomew, and G. G. Godfrey, is the president of the Avery Company, one of the largest manufacturers of agricultural machinery in the country. The Avery plant is a revelation in the manufacturing line, and many of its methods are being incorporated in the automobile plant. The car next year will be a refinement of this year's 45-horsepower, with a motor 4¾x5, the point being made that the satisfactory car of this year required little change.

"In Chicago I visited the **Holsman** Automobile Company. This company is far and away the leader in the motor buggy business, and its production is constantly on the increase. It has had a phenomenal year and is making great preparations for 1910.

"At Chicago I was told that the **International** Harvester Company is planning to produce 10,000 buggies next year, while Sears, Roebuck & Company, the mail-order house, gave an order recently for 10,000 axles to be used on motor buggies for 1910.

"Moline, Ill., is getting to be one of the leading automobile cities of the country, having three factories in operation. At the **Midland** plant they were preparing a car for the Glidden Tour, and making arrangements for next year's trade. A. E. Montgomery stated that the company had been favored with an excellent Southern trade, particularly in Texas, which seems to be coming to the front as an automobile State.

"At the plant of the **Velie** Motor Vehicle Company I found a factory 80x220, four stories high, with an army of workmen building an addition that will double the present capacity. The present car now will be continued next year.

"At the **Moline** Automobile Company's plant W. H. VanDerVoort stated that the last of the product would be shipped from the factory by July 1 and that work is now

under way on the 1910 models. He plans to continue his care of agents, supplying cars instead of promises, and believes strongly in supplying a sufficient number of cars to enable an agent to make a profit on his year's business. Additional help is being taken on and more room added for manufacturing purposes, which will permit a 50 per cent. increase in production next year. Three roadsters will be entered in the Glidden Tour for the Hower trophy and they will not be of the untried sort, for they were on the road a month ago and are being put through a series of severe tests. Besides their high-class four-cylinder car, the company makes a $1,500 four-cylinder machine for the country trade.

"The **American Simplex** car, made at Mishawaka, Ind., is the only high-powered two-cycle car built in this country. It is equipped with a motor of 50 horsepower at 900 revolutions. A feature of the car that Messrs. Graham & Gulick showed me was a carbureter of their own design which vastly reduced the gasoline consumption, often a point made in cars of the two-cycle type. The company has a well-equipped factory and is building an addition that will permit about a 50 per cent. increase in the production for 1910. One **American Simplex** will compete in the Glidden Tour.

"To show his faith in the reliability and continuous running qualities of the buggy type of machine, W. H. McIntyre, the manufacturer of the **McIntyre** car at Auburn, Ind., has entered a machine in the Glidden Tour. It is expected by continuous running to make the same average speed as cars of greater power. It will be the only one of its type in the tour. It is equipped with a two-cylinder, air-cooled motor and is shod with solid tires. Incidentally, Mr. McIntyre has been a resident of Auburn for forty years, owns the daily paper there, and is interested in a number of its industries. His carriage factory turns out 30,000 to 40,000 horse-drawn vehicles annually.

"No factory that I visited is more modern than the plant of the **Mora** Motor Car Company, at Newark, N. Y. It is light and clean, with high ceilings, and Mr. Mora insists it all helps the men to turn out good work. All the 1909 cars will be out by July 10 and will be delivered immediately to customers through the agents. Work is now under way on the 1910 product, which will be new in several features, although carrying most of the features that have made the **Mora** car so successful during the past two years. The horsepower of the four-cylinder car will be increased from 24 to 35. Among the other features is the casting of a ledge on the engine base reaching to the radiator, which, combined with the original **Mora** under-pan idea, makes a complete covering of the under part of the machine, insuring a clean motor and clean working parts.

"S. H. Mora, owing to his long experience as sales manager of the Kodak Company, thoroughly understands the handling of agents, and appreciates the necessity of keeping them supplied with cars at a time when the cars are in the greatest demand. His arrangement with agents is such that almost all of them receive an allotment of cars sufficient to make a substantial profit.

"Great preparations for next year in the way of additional buildings and the demand for additional help, to say nothing of the betterment of cars, both in material and construction, coupled with the reports of agents asking for 1910 cars and territory, enables even the poorest prophet to declare for a great selling year in 1910."

DOWAGIAC MOTOR WORKS OFFICERS KILLED

DOWAGIAC, MICH., June 28—F. A. Lake and Leon R. Lyle, both of Dowagiac, Mich., who were killed in the South Shore wreck near Chesterton, Ind., when eleven people lost their lives, were president and secretary, respectively, of the Dowagiac Motor Works. They were homeward bound from the automobile races at Crown Point, Ind.

MRS. "MAXWELL" RAMSEY REACHES OMAHA

OMAHA, NEB., June 28—Nearly half way across the continent, after a run of 1,700 miles, Mrs. Alice R. Ramsey and her party of women autoists, who are traveling from New York to San Francisco in a Maxwell touring car, reached this city yesterday, and this morning resumed their journey towards the Pacific. So far the trip has proven Mrs. Ramsey's contention, that in the right car a woman can make the trip without trouble. Several times the wheels of her Maxwell have gone hub deep into the mud, but each time it pulled out, and once, after having left Chicago, it not only got out of a particularly bad spot alone, but pulled a big, six-cylinder car out, too. Excepting for this, the trip has been without incident, though there have been plenty of amusing incidents from the time the party left New York, June 9. In every way it has been a most successful trip, but one blow-out necessitating a tire change. On account of the many receptions accorded the women, the mileage has been a bit smaller than could have been made. In almost every town and city between New York and Omaha the car and party have been given a great reception, while in Chicago they were met outside of the city limits by a dozen or more cars and escorted in. When they started for Clinton early in the week, the first stop on the run to Omaha, more than 40 cars drove out 50 miles with the tourists, and it was a happy party that left the city. So far, the trip has been thoroughly enjoyable in every way, which, of course, is partly due to the fact that the big touring car has gone from 125 to 191 miles every day, those figures being the lowest and highest recorded.

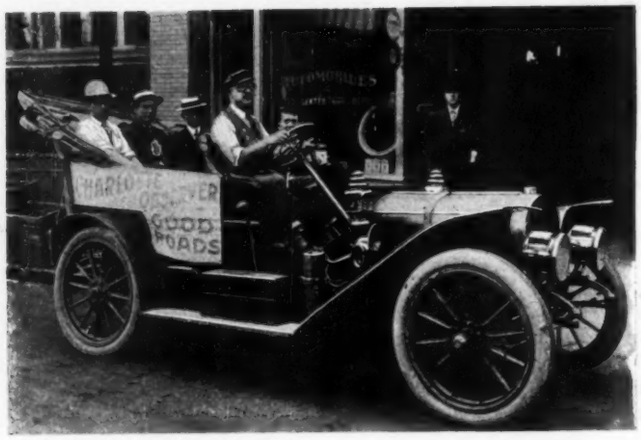
MAXWELL BENEFIT SOCIETY

Employees of the New Castle, Ind., factory of the Maxwell-Briscoe Motor Company have recently perfected a social and athletic organization and benefit association, which they call the "New Castle Gymnasium." They assess themselves ten cents each per week, and thus have a sick benefit and insurance feature. The company has co-operated with the men and has furnished a very complete gymnasium, reading and billiard rooms, etc., and out of the 2200 people employed in that plant, about 1600 are members of the organization. Under its auspices are a baseball team and the Maxwell-Briscoe concert band of 30 pieces, and during the winter there are classes in mechanical drawing, metallurgy, and other subjects pertaining to automobiles. According to Benjamin Briscoe, president and general manager of the Maxwell-Briscoe Company, this is the largest and most completely organized employees' association in the auto industry.



Overland "Thirty" That Carried a Notable Four

At the wheel on a recent trip over Long Island roads was A. E. Schwartz, foreign representative American Motor Car Manufacturers' Association; in same seat, L. M. Bradley, advertising manager A. M. C. M. A.; in rear seat, A. J. Sticker, of Frank Presbrey Company, and the well-known automobile writer, Arthur N. Jervis.



Good Roads Advocate Klouse and His Rambler

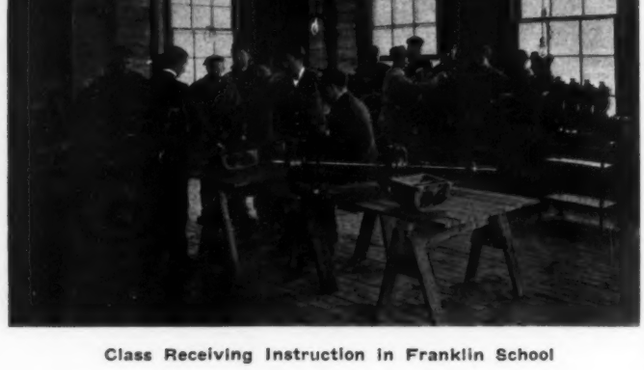
RAMBLER ASSISTS IN GOOD ROADS WORK

CHARLOTTE, N. C., June 28—In an energetic campaign now being conducted throughout the South in behalf of good roads, newspapers, automobile manufacturers, and automobile owners are enthusiastically co-operating. The campaign has now reached a point where the desire for good roads has become almost a mania, and autoists in all parts of the South are making tours to educate the users of the road in the importance of better public highways.

Joseph Klouse, of this city, has just made a trip of 3000 miles in a Rambler, in which he visited many of the important cities in the South, distributed literature along the way in behalf of good roads, and aroused much interest in the movement. The Rambler driven by Mr. Klouse has traveled over 18,000 miles, and it finished one run of 250 miles, from Charlotte, N. C., to Atlanta, in 21 hours and 30 minutes. Mr. Klouse represents the Charlotte *Daily Observer* in the New York *Herald*-Atlanta *Journal* good roads promotion.

FRANKLIN PUPILS LEARN RAPIDLY

SYRACUSE, N. Y., June 29—Tangible results of instruction in the repairmen's course maintained in the automobile school at the factory of the H. H. Franklin Manufacturing Company are in evidence in the shape of two automobiles assembled from raw stock by the pupils. It took three members of the class two weeks to construct the two cars, when the work was passed upon by the testers, just as are cars in the regular course of manufacture. The class has twenty-six members, under supervision of I. O. Hoffman, formerly an instructor in Syracuse University. The course is one of twenty-six weeks, providing both theory and practice, most of the time being spent in practical work.



Class Receiving Instruction in Franklin School

DOW RIMS FOR LARGE TIRE CONCERNS

An announcement of much interest to the trade at large is the adoption of the Dow Remountable rim by the Hartford Rubber Works Company, Hartford, Conn., and the G & J Tire Company, Indianapolis, Ind. In making this announcement, the two tire companies feel that they are offering to the public a rim which can be recommended, and the use of which is spreading very rapidly. The rims may now be had with both the regular Clincher and the Universal Q. D. form.

Under license to the Dow patents, the rims are now being made by the Weston-Mott Company, Flint, Mich., this firm being one of the largest in the country as to size and excellence.

In construction, the Dow rims are extremely simple; there are no loose pieces to be lost, no nuts or bolts to be loosened. The act of putting a rim on or taking one off is very easy, consisting of a few turns of a wrench, and the removal of the tire and rim. This wrench through the medium of a rack attached to the rim rotates the same, which slides wedges over one another, one set being attached to the felloe and another to the rim. As these wedges form the attachment of the rim to the felloe, this rotation loosens or tightens the contact according to its direction. These features have made it easy for amateurs to use and indirectly resulted in the above announcement.



Great Western Car After 800-Mile Mud Battle

This car, which is manufactured by the Model Automobile Company, Peru, Ind., recently made a hard trip through Illinois and Indiana, traveling 800 miles through mud and rain. The bundle on the luggage rack was a brand new suit case at the beginning of the trip, but after the pounding it went through it was in shreds.

REPUBLIC TIRES PROVE EFFICIENCY

Automobile accidents nowadays are limited almost entirely to peculiar and unheard-of mishaps. One of the oddest occurred to Mr. Pratt of the Republic Rubber Company recently. He was driving in New Rochelle, N. Y., when the brass shutter in his carbureter broke off, producing the effect of a wide open throttle. The engine immediately began to race, and while the driver was trying to get control, the car began to travel at top speed. It did not occur to the driver to throw out his clutch for a few moments, as he expected at any instant that the car would respond to the throttle control.

Meanwhile several sharp curves were passed and there was imminent danger of skidding. The car was equipped with Republic staggard tread tires, which were given an unusual test of their anti-skid qualities, and proved remarkably effective so that the expected side-slip never occurred, the tires gripping the road in a most comforting and satisfying way. The car was soon stopped, the trouble located and remedied.

Newark, N. J.—The Imperial Garage has been opened on Belleville avenue by F. W. Briggs, who was formerly connected with J. M. Quimby & Company.

SOME SELECTED AUTOMOBILE PATENTS

Issue of June 15

924,634. **Explosion Engine**—Richard D. Cody, Winona, Minn. Filed Feb. 23, 1904.

924,639. **Governor for Explosion Engines**—Harry M. Cramer, Lansing, Mich. Filed April 12, 1907.

924,640. **Explosion Engine**—Harry M. Cramer, Lansing, Mich. Filed April 20, 1908.

924,673. **Carbureter**—James B. Knickerbocker, Indianapolis, Ind. Filed Nov. 21, 1907.

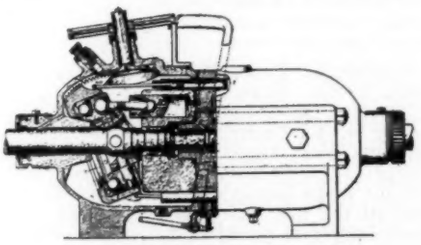
924,715. **Self-Measuring Oil Pump**—Flavius J. Young, Fort Wayne, Ind. Filed Oct. 23, 1908.

924,724. **Spring Wheel**—John W. Benson, North Wayne, Me. Filed July 7, 1908.

924,757. **Steering Mechanism for Self-Propelled Vehicles**—Rodolphus Fuller, Detroit, Mich. Filed Feb. 6, 1908.

924,787. **Variable Speed Transmission Device**—Reynold Janney, New York, N. Y. Filed July 9, 1906.

This is a combination of oscillating crank engine with speed transmission. The pis-



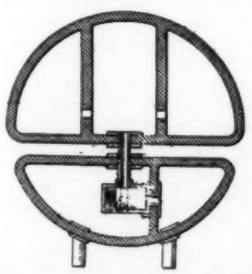
Janney Oscillating Crank Engine

tons travel back and forth in a housing and in so doing operate a rotary oscillating crank. The admission of fuel to the odd number of pistons is controllable, and, of course, variable. In this manner the speed of the engine may be varied at will. The drive is from the rotating crank by means of a gear, the shaft of which projects through the crankcase. On the extremity of this shaft is placed a gear, either of the spur type, or a sprocket, from which the drive is transmitted. As shown in the patent office sketch, the device is apparently double ended, there being as many pistons at the right hand end as at the left.

924,806. **Antiskidding Attachment for Wheel Tires**—George A. Lyon, Philadelphia, Pa. Filed March 18, 1907.

924,812. **Pneumatic Tire**—Daniel McArthur, Jersey City, N. J. Filed April 15, 1908.

In his tire, McArthur has a series of tire



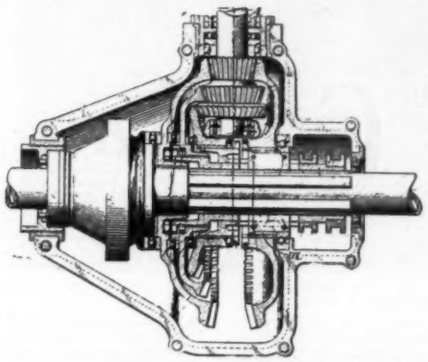
McArthur Compartment Tire

compartments, divided one from the other by means of partition walls, which in use would be perpendicular to the road surface and thus, would take part of the load. These surface partitions are connected to an air conduit in the base of the tire by means of a series of individual valves. In case of the puncture of any one surface section the valve closes so that no more air may enter.

924,863. **Spark-Ignition Device for Explosive Engines**—James A. Whitton, Los Angeles, Cal. Filed Nov. 26, 1907.

924,889. **Variable Speed Gearing**—Gustave Chedru, Buffalo, N. Y. Filed July 16, 1907.

A new idea on the part of the Thomas engineer has for its basis a series of bevel gears and pinions, clutched up to the rear axle



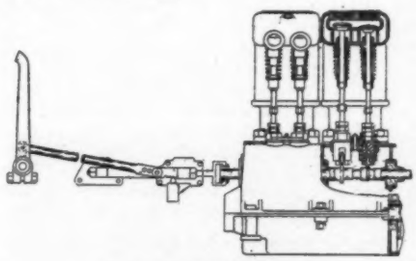
New Thomas Rear Axle Transmission

by means of individual clutches. Throwing the clutch for any one of the gears connects it to the axle, and thus transmits the drive from the engine. In this manner three speeds and a reverse are provided in a very small compass. Although nothing is said about the control, it is easily apparent that this could be arranged to operate upon the now popular selective principle, in which case an excellent and very compact final drive will have been obtained.

924,913. **Recoil Check**—Frederick J. Mellen and Burton A. Edwards, Beloit, Wis. Filed Nov. 11, 1908.

Issue of June 22, 1909

925,528. **Pneumatic Brake for Motor-Vehicles**—Ernest E. Sweet, Detroit, Mich. Filed Jan. 11, 1908.



Cadillac Braking Device

A device for braking the car by drawing the exhaust cam out from under the valve, when the exhaust gases can not leave the cylinder, and the piston continues to compress them, over and over, this acting to retard the forward motion of the car.

925,536. **Vehicle-Wheel Bearing Mechanism**—Clarence F. Umholtz, Bristol, Va. Filed Mar. 23, 1908.

925,543. **Vehicle-Brake**—Joseph H. Wesson, Springfield, Mass. Filed June 30, 1908.

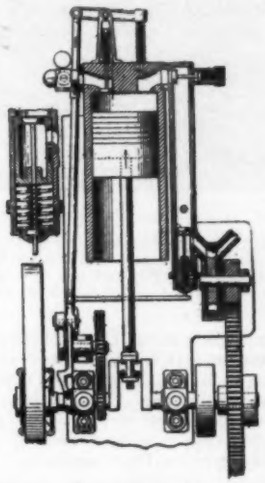
925,560. **Felly for Wheels with Pneumatic Tires**—Theodor Bruckner, Vienna, Austria-Hungary. Filed Nov. 9, 1906.

925,579. **Running Gear for Vehicles**—Martin W. Heyenga, Chicago, Ill. Filed April 24, 1908.

925,580. **Tire**—Charles H. Keiffer, Akron, Ohio. Filed Jan. 25, 1909.

925,766. **Internal Combustion Engine**—Leander E. Fish, Los Angeles, Cal. Filed Feb. 21, 1908.

Fish has an idea here of doing away with the valve operating mechanism of one valve, and also utilizing an automatic inlet valve, with all of the advantages of the mechanical valve. This effect is secured by having a mechanical agitator, which at the same time mixes the gases and regulates the amount allowed to enter. These mixed and measured gases enter through a valve operated from the exhaust push rod into a vertical passage. From this latter the entrance to the combustion chamber is by means of an automatic valve. While the drawing makes

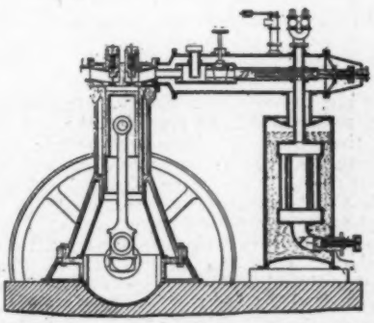


Engine Simplification by Fish

the engine look complicated it may possess much merit.

925,845. **Method of Utilizing Heat of Combustion and Steam Power in Prime Movers**—Theodor Schtscherbakoff, Moscow, Russia. Filed Sept. 10, 1904.

The Russian, with the unpronounceable name, intends to utilize the heat ordinarily wasted in the exhaust by passing it first through a muffler, after which it goes to a heating chamber. In the latter, it is made to heat water, which latter the inventor proposes to use in a nearby steam boiler. The idea is to do away with the ordinary feed water heater, probably, but the fault in the whole scheme is that where gas engines are used for power, steam is seldom also used.



Method of Utilizing Waste Heat

The opposite of this also holds true, so that there seems to be very little field for a device like this.

925,908. **Wheel for Road Vehicles**—James Henderson, Burton, England. Filed Aug. 17, 1907.

925,930. **Wheel Tire**—Joshua D. Marvil, Laurel, Del. Filed Sept. 11, 1908.



Midland Car Makes Plowing a Fine Art

Recently at the factory of the Midland Motor Company, Moline, Ill., additions necessitated the plowing of a large tract of land. Horses being at a discount around an automobile factory, a car was hitched up to a plow and with a man to drive and another to guide the plow, the land was plowed in about one-fourth of the time it would have taken horses to do it.

Grease Lubrication Under Heavy Bearing Pressures—In automobiles abnormal bearing pressures are liable to occur, which severely test the quality of the lubricant employed. In some tests of Keystone grease, manufactured by the Keystone Lubricating Company, of Philadelphia, recently made by a competent authority, this automobile lubricant showed remarkable performance under heavy bearing pressures. The Olsen testing machine was employed, and the pressure was increased by steps of 86.2 pounds per square inch up to the high maximum pressure of 431 pounds, a full sixty-minute run being made at each pressure. During the entire run at each pressure the lubricant maintained true fluid friction between journal and bearing and withstood the temperature rise without a sign of any disintegration. This result is stated by the company to be due to the permanent consistency of Keystone grease under great increase of bearing pressure and temperature—it does not squeeze out of the bearing nor soften by heat and run away from between the surfaces requiring lubrication at the very time it is most needed.

Riggs Becomes an Oregonian—The West gets a lot of the good ones in the automobile business. Perhaps it is the echo of Horace Greeley or the clink of the big round silver simolean that draws the regulars of the trade to the far side of the Rockies, where the people raise enough prunes, oranges and canned salmon to raise the price of good automobiles and thereafter raise dust on all highways anent the Pacific ocean. Frank C. Riggs is the latest—Riggs, till now assistant sales manager of the Packard Motor Car Company, erstwhile vice-president of the Fisk Rubber Company, and one of the old friends back in the days of "Yellow Fellows" and other bicycles that made life worth living while waiting for automobiles. Mr. Riggs will be in Portland, Ore., soon after July 1. He will be dealer for "Three P's"—the Packard "Thirty," Packard "Eighteen" and Packard truck. Mr. Riggs will have temporary headquarters at the Hotel Portland, but will establish a permanent store without delay.

Enlarged Factory for Hartford Shock Absorbers—"We have found it necessary," says Edward V. Hartford, president of the Hartford Suspension Company, "to increase our manufacturing facilities at Jersey City. For the past six months we have been so swamped with orders not only from automobile manufacturers, who use our suspensions as standard equipment, but from individual users as well, that we have arranged to duplicate our already large factory. With these increased manufacturing facilities we expect to catch up on past orders and in three weeks to a month's time hope to be able to deliver promptly."

Winton Branch and Road Men to Meet—Sales Manager Churchill has called a convention of Winton branch managers and road men to be held at the Winton factory in Cleveland during the week of June 28. Final reports in the $2,500 Winton Six upkeep contest are expected sufficiently early for the judges to meet in Cleveland about July 10 and make the awards. Indications are that the winning record of last year—11,683 miles at a repair expense of $12—will be beaten by this year's winner. The upkeep contest is an annual Winton fixture and will, of course, be continued.

Stearns Sure to Get Parts—The F. B. Stearns Company, of Cleveland, has adopted a new plan of insuring its securing prompt delivery of the materials and parts which go into the Stearns product. For next year an expert will travel all over the country to call on firms from whom the Stearns company purchases, such as magneto, bearing and other manufacturers, and it will be his duty to see that adequate steps have been taken to give the Stearns concern its supplies on schedule time. If there are any methods by which these can be hurried along he will suggest them.

Colwell's Play Meets with Success—M. Worth Colwell, of the Wagner-Field Company—advertising, not theatrical—has produced his vaudeville sketch in Brooklyn and the play was well received. It is entitled "The Child from Pittsburg" and was written jointly by Colwell and Alan Brooks. The latter, who was "Bub" Hicks in Ade's "College Widow," and later a comedian in "A Stubborn Cinderella," plays the title rôle, and Jeanette Despres, who was with Hitchcock in "A Yankee Tourist," is the leading woman.

Big Prize Money for Cobe Winner—Louis Chevrolet and his team-mates, Robert Burman and Louis Strang, have been presented with a purse of $10,000, to be divided equally among them, for their performances in the races on the Crown Point course. Chevrolet won the Cobe cup for big cars with his Buick, and all three men took part in both events. This reward is in addition, of course, to their regular salaries and to the sums which Chevrolet received from certain manufacturers of accessories.

F & S Bearings and U & H magneto on Prince Henry Winners—The J. S. Bretz Company, New York, has been advised by cable that the F & S bearings, which it imports, were on all of the first twelve cars in the Prince Henry contest except the seventh, and that these bearings were also used by the winner of the speed test. Another cablegram states that the U & H magneto was on the Opel car which won the contest and that the same make of magneto was used by the first two cars in the speed trials.

Covert to Erect Big Shops—The Covert Motor Vehicle Company has purchased a large block of land in Lockport, N. Y., between Grand and Green streets, near Lock street, on which to build a new factory. The present plant is not large enough, and the first building of the new one will be of brick, 130 feet long and 50 wide, two stories high. This allows space for other structures.

New York Tradesmen Form Baseball League—The baseball fever is epidemic with the New York tradesmen, evidenced by the New York Automobile Trade Baseball Association, which comprises the following teams: Packard, L. H. Wessels; Thomas, W. A. Woods; Pierce, Walter Wunder; Studebaker, James H. Barry; Diamond Rubber Co., C. G. Studebaker; Republic Rubber Co., George C. Kloss.

Vanguard Company to Enlarge—The Vanguard Manufacturing Co., Joliet, Ill., maker of spark plugs and wind shields, has had plans completed for a new building which will be 60 by 250 feet in size, one story high, constructed of brick and concrete. This will more than double the present output and will give facilities for operating a brass foundry and adding specialties to those now made.

Chalmers Winner Had Continental Rims—The use of demountable rims, which are positive in their action, both as to ease of replacing and as to security when fastened, is necessary in automobile races. The winning Chalmers-Detroit car in the Indiana trophy race was equipped with Continental demountable rims and was able to make tire changes in record time.

Lexington Company Will Increase Capital—The Lexington Motor Car Company, of Lexington, Ky., is about to double its capitalization, raising it from $25,000 to $50,000, in order to enlarge the factory facilities. The cars have been in great demand and it is now stated that orders are on the books which will take up the entire output of five or six cars a week for two months.

Dorris to Increase Output—The Dorris Motor Car Company, St. Louis, has purchased ground at Sarah street and Forest Park, 185 by 200 feet on each, re-

spectively, on which to enlarge its present factory. The new building will be of brick, three stories high, and will cost $60,000. The output of the Dorris cars will be considerably increased.

Last 1909 Winton Shipped—The last 1909 Winton Six has been sold and shipped from the factory in Cleveland, marking the close of the most successful season in the history of the Winton company. The company's products for 1910 will be announced July 10.

IN AND ABOUT THE AGENCIES

Pullman Makers Make Agency Contracts—The York Motor Car Company, manufacturer of Pullman automobiles, announces closing with the following concerns of agency contracts for 1910: New York, Cimiotti Brothers; Boston, Crown Motor Car Company; Buffalo, Meyer Carriage & Auto Company; Baltimore, Shaffer Manufacturing Company; Minneapolis, Minn., Victoria Motor Car Company; Oklahoma City, Okla., O. G. Lee.

White Company Opens Washington Branch—The White business in Washington, D. C., has grown to such proportions, due in no small measure to the patronage of President Taft, that it has become necessary to establish a district branch office of the White Company in that city. The new branch is located at 1124 Connecticut avenue, in charge of F. I. Chichester, and is under the control of the Eastern branch in New York.

Renault Extends Trade in West—Renault Freres' selling branch in New York announces that it has arranged with F. A. Bennet to handle the Renault cars in Oregon, Washington and Idaho, and with the Colburn Automobile Company of Denver for the State of Colorado. The new cars, with reinforced axles and springs, and extra high clearance, have proven very successful on the Western roads.

Pierce-Arrow, Pittsburgh—Headquarters have been secured by the McCurdy-May Company, new agents in Pittsburgh for the Pierce-Arrow Motor Car Company, Buffalo, N. Y. The building is located at Baum street and Euclid avenue, East End. Robert R. McCurdy, for six years with the Banker Brothers Co., will be manager of the new company.

Two Diamond Branches Under One Manager—The Diamond Rubber Company states that although for more than a year George J. Bradley has been manager of the company's Detroit establishment, he is still manager of the Cleveland branch as well. Division of his time between the two points has led to some confusion.

Great Western Agents Appointed—The Model Automobile Company, manufacturer of the Great Western automobiles, announces the following agencies: Omaha, Neb., F. A. Reynolds; Scribner, Neb., John Borcher; Wadena, Ind., C. R. McNown; Nicholasville, Ky., C. A. Kenney.

Diamond to Open Atlanta Branch—The Diamond Rubber Company has arranged to open a direct factory branch in Atlanta, Ga., at 48 Auburn avenue, about the middle of August, from which to handle the growing Southern trade.

Miller Will Open Hartford Branch—Charles E. Miller, of New York, it is reported, will open a branch house for the sale of automobile supplies in Hartford, Conn.

Brown, Thomson & Company, Hartford, Conn., have taken the agency for Stevens-Duryea and Cadillac automobiles in place of the Packard.

RECENT BUSINESS CHANGES

Baltimore—The local agent for the Oakland, Reo and Hupmobile, Little Joe Wiesenfeld, has secured the services of David Asher, a former New Yorker. O. G. Hoff, until recently with the local branch of the Olds Motor Works, has taken a position with Leo Schaab, who conducts the Baltimore agencies for Stoddard-Dayton and Renault cars.

PERSONAL TRADE MENTION

A. W. Hall, of Cleveland, formerly a member of the firm of Hall Bros., Cartercar and Plymouth truck agents, has left the above concern, going to Plymouth, O., to take entire charge of the Plymouth factory. Hall Bros. has become The V. R. Hall Automobile Co., continuing with the same line of machines as before.

Ronald E. Maude, representative of the Deasy Motor Car Manufacturing Company, Ltd., of England, is now in this country with the purpose of introducing the product here. The Deasy company makes three types of cars, all with four cylinders.

Maurice Bernin, the former Renault racing driver, will shortly go to New Orleans, where he will start a Renault Taxicab Company and also have the agency for the Renault cars.

T. Dudley Riggs, representative in Hartford, Conn., for the Simplex automobiles, has returned to his old home, Baltimore, and will enter the automobile business there.

TAXICABS AND TRANSIT

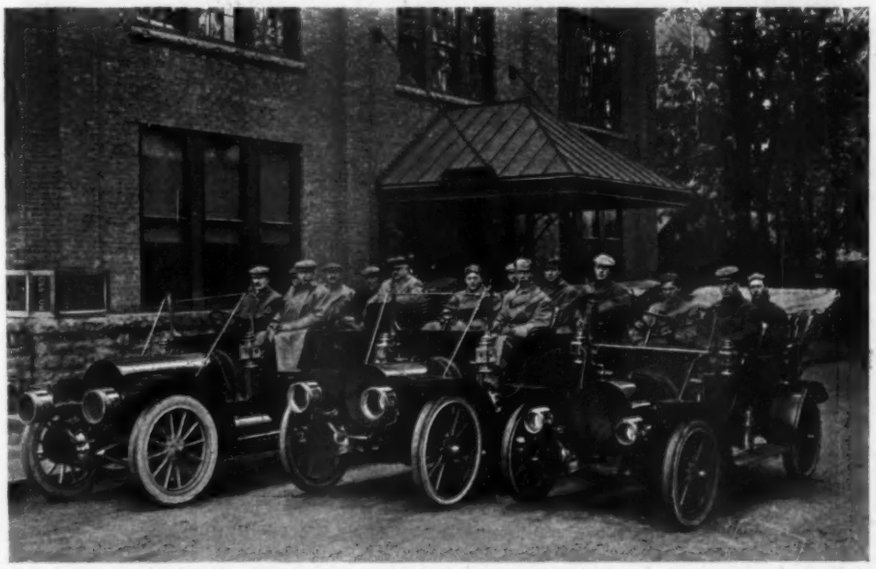
Taxicab Ordinance Changed—After several months of backing and filling, the New York City Board of Aldermen finally amended the taxicab ordinance so as to limit the charges to 30 cents for the first half mile on two-seated cabs and 40 cents for four-seaters. As there are practically none of the former in the city, this amounts to lowering the present universal rate of 50 cents. The ordinance also provides for frequent inspection and correction of taximeters. It was signed by the Mayor and will go into effect about October 1.

HOW WINNERS LUBRICATED

Matson, Chalmers-Detroit winner of the Indiana trophy, and Chevrolet, Buick winner of the Cobe cup at Crown Point, Ind., June 18 and 19, chose for their lubrication Harris oils. The makers are much elated at the double victory.

TESTED NEW MODELS HIMSELF

It usually happens that the work of trying out the new models for an approaching season is left to a paid tester, to whom the job is like any other, all in the day's work. Not so at the Franklin factory, when three of the newer cars for 1910 had been completed; these were taken in hand by President H. H. Franklin himself, with a specially organized party of factory heads, and personally driving one of the three. They were subjected to a five-day tour, in which an average per day of 165 miles was covered, the total being 823 miles. This was over roads, through mountain climbs, and wherever hard going could be found in the general direction in which the party was traveling. The roads, hills and speed tests put up to the latest product of the big Syracuse factory were fully equal to anything which will be met on this year's Glidden Tour. The main course was from Syracuse to Boston, with an extensive detour through the Catskills. The largest car was the seven-passenger forty-two horsepower machine driven by Mr. Franklin. The other two were a twenty-eight horsepower touring car carrying five and driven by Arthur Holmes, and a four-passenger car of eighteen horsepower, driven by R. A. Vail. The whole party included President Franklin, Vice-president Giles H. Stilwell, Secretary-Treasurer F. A. Barton, Sales Manager F. R. Bump, Advertising Manager J. E. Walker, Sundry Sales Manager J. G. Barker, Traffic Manager Herbert Hess, Superintendent F. J. Haynes, Chief Engineer John Wilkinson, Assistant Engineer Arthur Holmes, Engineer R. A. Vail, Engineer R. W. Coughtry and Charles Slingerland.



The Franklin Testing Party Starting from the Factory with the 1910 Models

RECENT PUBLICATIONS

Peerless Motor Car Company, Cleveland—An announcement of the 1910 models of this prominent firm includes no radical changes, but only the incorporation of new features, these being rather on the infinitessimal order, and one new model, a 20-horsepower town car. The latter is equipped with a four-cylinder 4x4 5-8 motor, for which the A. L. A. M. rating would be 27, but which the makers prefer to rate at 20. This will be known as Model 29, and will be equipped with but two body styles, limousine and landaulet. For both, the wheelbase will be 113 inches, and the wheels 32 inches in diameter with 3 1-2-inch tires all around. The minor changes in the standard cars include more stiffening ribs on the one-piece crankcase, a new carbureter, larger diameter clutch on the "six," the advanced position of the transmission case, which allows a more comfortable location of the levers, the lengthening of the propeller shaft which accompanies the movement of the transmission, with consequent decrease in the angle of the same. In addition, the springs are lengthened, the fronts by two inches and the rear sides by four inches. This latter change should make a very easy riding car, for the springs of last season were already long.

Societe Anonyme Des Automobiles "Unic," Puteaux, Seine—As a sample of the better class of French car manufacturer's trade catalogues, this is very interesting. The artistic and the practical are combined excellently, there being a surfeit of neither one. The press work, unusually difficult with the three colors used, is very well done. Five chassis are built, or rather five engines are used, the number of chassis being far in excess of this. These five motors are placed in as many chassis for runabouts and touring cars, while four of them are also used for commercial vehicles. Of the latter four, two may be had fitted for cab use or light delivery wagons. Two more are put into special chassis for truck, omnibus, and other heavy work of a similar nature. The five engines are: 10-horsepower, two cylinders, 102 by 110; 12-horsepower, four cylinders, 75 by 110; 16-horsepower, 87 by 110; four cylinder, 24-horsepower, 102 by 116; and a "six," 25-horsepower, 85 by 120, the latter being used for touring cars only. A series of very interesting marginal cuts show the various engines, most of the parts of the same, views of the transmissions, and other car parts, as well as numerous scenes in the large shops at Puteaux.

Gramm-Logan Motor Car Company, Bowling Green, O.—Facts relative to the economic use of the commercial vehicle are ably presented in the catalogue of the Gramm-Logan Company, recently issued. The book is gotten up in the same style and with the same evident care as that bestowed upon the best of the publications illustrative of the modern high-priced pleasure cars, bound in heavy stock of a pleasing blue color. Gramm-Logan trucks are built in numerous styles, upon three general chassis models, depending upon the loads to be carried, using water-cooled motors for the large machines, and air-cooled ones for the light delivery wagons and buses. The features of these engines, as well as of the transmissions, general driving mechanism, axles, ignition system, etc., are explained in detail, and illustrations given of the different kinds of bodies which can be secured upon short notice. A double page, in the center, is devoted to a comparison of the cost of horse-drawn transportation as compared to that of the Gramm-Logan trucks, based upon actual work, and shows conclusively the advantages of the latter.

Cartercar Company, Pontiac, Mich.—Friction-driven Cartercars are well known throughout automobile circles, particularly because of their transmission feature, and further details of this, as well as of the other parts of the cars, are narrated in the new catalogue, No. 10, just received. A number of illustrations are given, the frontispiece being a reproduction of a photograph taken of a Cartercar in service on Mount Hamilton, Cal., running to and from the Lick observatory; there are cuts showing factory details—the motor assemblage, that of the new chain-in-oil drive, and, finally, several of the completed cars to show their various body types. The Cartercar Company has recently moved into its new factory, with the most modern equipment and ample facilities for the construction of a large number of machines annually. The catalogue mentions this and gives an interesting sketch of the origin of the friction transmission. Seven styles of bodies for Cartercars are shown pictorially—touring cars, runabouts, roadsters, coupés, taxicabs, and commercial vehicles being represented.

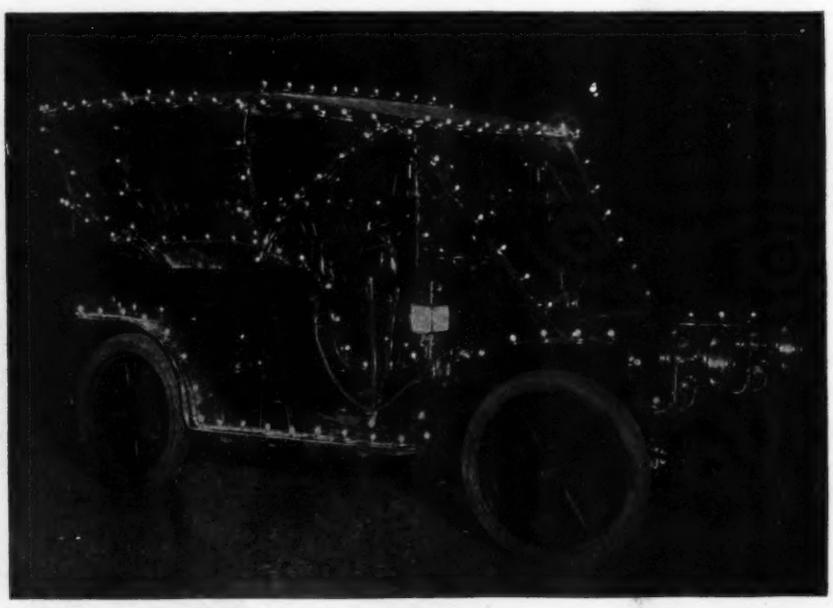
Diamond Rubber Company, Akron, O.—Motor truck tires, both of the wire mesh base and side wire types, are described in the most recent publication of the Diamond Rubber Company. The covering of this book is one to instantly attract attention, in that it is a brilliant red color, with gilt trimmings, and the descriptive matter in the interior is well printed on heavy, cream-colored stock. The material used in the Diamond products is called to attention, the reasons for certain processes, and then the regular catalogue features are taken up. Not only are the various tires illustrated as to their general appearance, but also their cross-sections, and tables of sizes. Machines for applying the side wire tires are illustrated, and directions given for their use, so that the book contains a fund of information, especially valuable to those engaged in commercial businesses, for these tires are applicable to horse-drawn vehicles as well as automobiles.

Bartholomew Company, Peoria, Ill.—"Logic, which has developed the Glide car, and the reasons for its low cost of upkeep" is the title of a pamphlet issued by the Bartholomew Company recently. It is as interesting as its subject would indicate, in that it takes up the reasons for certain points in the construction of the Glide, for instance, showing why the spokes of the wheels were gradually increased from a diameter of 1¼ inches to 1⅝ inches, and why the rear driving axle was enlarged from 1¼ inches to the present 2 inches, both now fulfilling the requirements where the smaller sizes were found too light. Similar comparisons are made to show why the Glide has but one universal joint, whereas when the Glide was first built there were other manufacturers who were using two, three, and in cases four.



Prominent Autoists Tour in Cuba

This photograph was taken on a recent trip to the Queen of the Antilles by H. S. Firestone, president of the Firestone Tire & Rubber Company; James Couzens, secretary and treasurer of the Ford Motor Company, and Frank Presbrey, general advertising agent, of New York. These autoists did considerable touring while in the island.



Wonderful Car Illumination by Apple Electric System

In the parade for the Wright brothers' homecoming celebration at Dayton, Ohio, the car of V. G. Apple attracted very much attention, being outlined with electric lights. In all 260 tungsten lamps were used, the current being supplied from an Apico electric lighting outfit.

RECENT INCORPORATIONS

Regal Tire & Rubber Company, Camden, N. J.—Capital, $250,000. To manufacture automobile, carriage and other tires. Incorporators: W. H. Wilson, Stewart Murray, Frank A. Kuntz, W. C. Reinhold.

Eastern Auto Transit Company, Albany, N. Y.—Capital, $35,000. To operate a stage line between Albany and Schenectady. Incorporators: William A. Cryne, Edward D. Wintersteen, Charles B. Henry.

Quadruplex Auto Tube Company, Wilmington, Del.—Capital $600,000. Incorporators: Phelan Beale, 150 West Forty-seventh street, New York; M. D. Nave, G. U. Smith.

Queen City Auto Livery Company, Buffalo, N. Y.—Capital, $25,000. To operate an automobile livery service. Incorporators: C. V. Roty, H. C. Shufeldt, W. J. Hickey.

Morrison Motor Car Company, Chicago—Capital $20,000. To manufacture automobiles and accessories. Incorporators: J. T. Morrison, H. E. Piermont, O. H. Wolfe.

Electric Service Company, New York—Capital $50,000. To manufacture automobiles and accessories. Incorporators: W. L. Ernst, M. E. Harby, A. A. Ernst.

Waterhouse Carbureter Company, Boston—Capital, $100,000. To manufacture and sell motors of all kinds. Incorporators: H. D. Waterhouse, F. C. Hersee.

Jean Flying Machine Company, New York—Capital $5,000. To manufacture flying machines. Incorporators: Octave Jean, C. S. Horowitz, Herman Weiss.

Anderson Airship Company, New York—Capital $25,000. To operate vehicles through the air. Incorporators: J. J. Harper, E. J. Forhan, H. M. Browne.

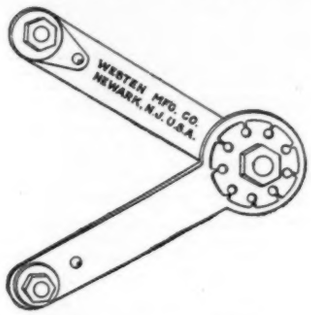
Cole Motor Car Company, Indianapolis—Capital, $100,000. To manufacture and sell automobiles. Directors: J. F. Morrison, J. J. Cole, Nellie G. Cole.

Brazier Garage Company, Philadelphia—Capital, $100,000. Incorporators: Carter G. Glenn, James K. Davis, John Y. Sinton, Robert Summers.

Automatic Inner Tube Company, Wilmington, Del.—Capital, $350,000. Incorporators: A. M. Bango, A. R. Bango, G. G. Steigler.

Information for Auto Users

Shock Absorbers Make Riding Easy—Tours like the Glidden, at the same time extended and strenuous, have done much to bring into use shock absorbers and other devices designed to make for easy riding. In the jolt-eliminator, made by the Westen Manufacturing Company, 290 Halsey street, Newark, N. J., two friction planes are used to check all large oscillations. Of these, the smaller is

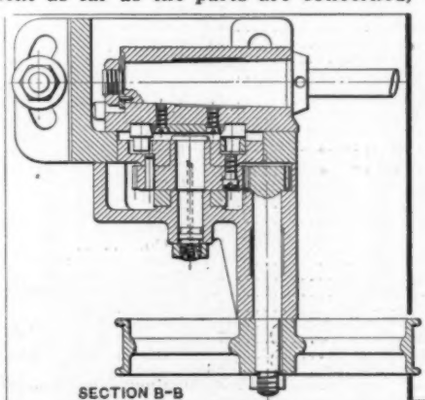


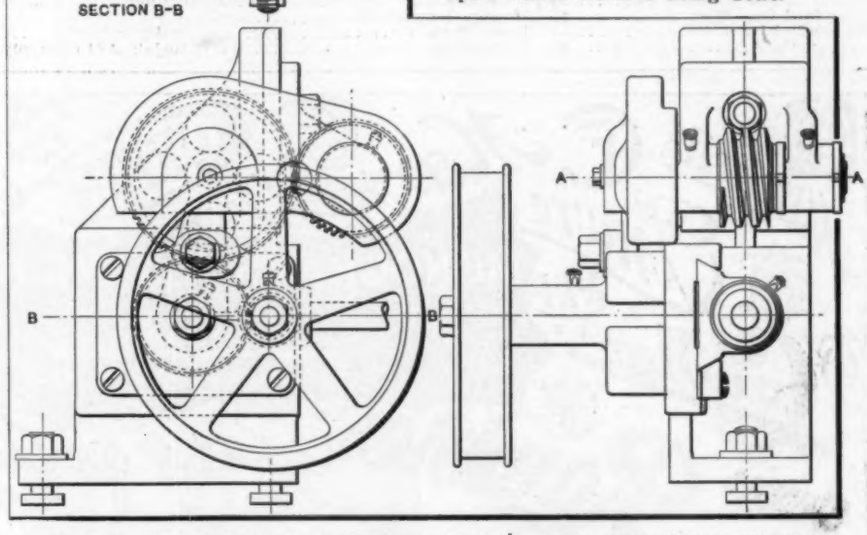
WESTEN SHOCK ABSORBER.

brought into use on small obstructions, such as are met ordinarily, while the larger plane comes into active use only on very rough surfaces resulting in unusual bumps. This makes for simplicity of construction and consequent adjustment, which is well worthy of consideration on the part of the new driver. After being once set—that is, when both planes have been adjusted—the makers say that no further adjustment is necessary. There are no moving mechanical parts to get out of order. In external appearance, as the line cut above shows, this device for making automobiling more pleasant resembles an older and well-known absorber.

A Handy Tire Inflator—Back breaking is a phrase which no longer applies to tire inflation, for the number of devices which are designed to eliminate the manual labor connected with tire inflation is augmented daily. The latest thing out is the Prest-O-Tire tube, made by the Prest-O-Lite Company, Indianapolis, Ind. This is a very small and consequently very compact tube filled with compressed carbonic gas. The supply carried in one of these little tubes, which take up practically no room in the tool box, is sufficient to inflate completely one large 36 by 5 inch tire, or, used with care, it will pump several deflated tubes. In use, it is the acme of simplicity, a valve and hose attachment screws into the end of the gas tube, thereby puncturing a metal cap in the end of the tube. This allows the flow of gas as soon as the valve is turned on. The other end of the rubber tube is attached to the tire valve, hand valve or supply cock is turned on and the compressed gas inflates the tire. The tube itself is but 1 1-4 inches in diameter by 12 inches long and weighs but one pound when filled. As the tubes cost but a dollar each, and, empty, are redeemable for 80 cents, the expense of inflating a tire in this manner is very small.

Improved Tooth Chamfering Machine—The increasing use of gears and with that the greater use for chamfered gears has naturally brought out machines for doing this work, thus replacing the slow and costly hand work. Of these machines one of the better known is that of the Long Arm System Co., Cleveland, O., of which the up-to-date improvements are worthy of mention. The machine itself is too well known to require any additional mention, but since it was first brought out several changes have been made. Thus the spindle position has been changed from a vertical to a horizontal one. By adding a tail stock, possible with this position, the range of work has been much extended. In addition to this, the new position allows chamfering gears in the middle of an integral shaft, which could not be done before. So, too, with unusual angles, it is now possible to swivel the attachment to such an angle as to do any desired form of chamfering. It is an improvement as far as the parts are concerned, for the chips do not fall on the work, and the wear on both cams and rollers is balanced at all times. The countershaft and consequently the whole driving mechanism are simplified, while the present direct belt drive does away with the idler pulley and balance weight. The cut shows a section through the working spindle, an end view and a side view.





THREE VIEWS OF THE LONG ARM SYSTEM COMPANY'S TOOTH CHAMFERING MACHINE.

Saves Electric Light Bills—Everybody loves the electric light companies so, and takes such delight in paying the light bills, that doubtless a device for economizing on the current used will not become popular. The Portland Wash-Rack Stand, made by the Brown Company, Syracuse, N. Y., does this by presenting a secure basis for the light fixture, and at the same time permitting of its movement toward the work so that superior illumination is secured from the same or a lessened number of lights. For garages, either public or private, this should prove invaluable. It consists of a four-footed flat base, hung low for steadiness, and provided with space for holding small articles in use while the light is being used. From this base, extending upward, is a three-foot riser or vertical upright, which, in turn, supports a special design of carrying bracket. On this bracket, which is held at any desired height by a thumb-screw, is attached a twin socket and a 12-inch reflector. An eight-foot covered extension and attaching socket completes the light. With the extension attached to any convenient light bulb socket the stand may be moved around the garage until it is in a suitable place near the work. The large flat base makes the light steady in any position, so that it may be used in unusual cases, such as washing or polishing three or more feet above the floor. For engine inspection, in particular, the light is very handy, the cluster being raised to the full height, and then placed close to the work. In this way the illumination covers the parts upon which work is being done.



PORTLAND WASH-RACK STAND.

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